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ATD Report 69-45-50-8

CBE FACTORS

*Monthly Survey No. 38*

ATD Work Assignment No. 50

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## FOREWORD

This report is the thirty-eighth in a series of monthly surveys covering the following areas:

- I. CHEMICAL FACTORS
  - Pesticides
  - Herbicides
  - Fertilizers
  - Psychotomimetics
  - Other Chemicals
- II. BIOLOGICAL FACTORS
  - Pathogens
- III. ENVIRONMENTAL FACTORS
  - Aerosols
  - Ecology
  - Micrometeorology
  - Soil Science
- IV. GENERAL

Titles of publications cited in Sections I—IV are listed alphabetically in Appendix I. An author index is included as Appendix II. There is no bibliography.

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# **I. CHEMICAL FACTORS**

SOURCE CODE: UR/0079/68/038/010/2339/2340

ORG: none

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2339-2340

**ABSTRACT:** IR spectra of the products formed in the reaction of phenylhydrazides of phosphorous acids with aldehydes and ketone in ether at 10—15°C (method I) revealed that the reaction proceeds by the following mechanism:

UDC: 547.26'118+547.234

$$\begin{array}{l}
 (\text{RO})_2\text{PNHNC}_6\text{H}_5 + \text{O}=\text{CR}'\text{R}'' \longrightarrow (\text{RO})_2\overset{\cdot+}{\underset{|}{\text{P}}}-\overset{\cdot-}{\underset{|}{\text{O}}}-\text{NHNHC}_6\text{H}_5 \\
 | \\
 \text{O}-\text{CR}'\text{R}'' \\
 \rightleftharpoons \\
 (\text{RO})_2\overset{\cdot+}{\underset{|}{\text{P}}}=\text{NH}-\overset{\cdot-}{\underset{|}{\text{O}}}-\text{NHNHC}_6\text{H}_5 \\
 | \\
 \text{O}-\text{CR}'\text{R}'' \\
 \downarrow \\
 (\text{RO})_2\overset{\cdot+}{\underset{|}{\text{P}}}=\text{O} + \text{R}'\text{R}''\text{C}^+=\text{NNHC}_6\text{H}_5 \\
 \swarrow \quad \searrow \\
 (\text{RO})_2\overset{\cdot+}{\underset{|}{\text{P}}}=\text{O} + \text{R}'\text{R}''\overset{\cdot+}{\text{CNHNC}_6\text{H}_5} \\
 \swarrow \qquad \nwarrow \\
 (\text{RO})_2\overset{\cdot+}{\underset{\parallel}{\text{P}}}-\overset{\cdot-}{\underset{|}{\text{O}}}-\text{NHNHC}_6\text{H}_5
 \end{array}$$

$R^* = C_3H_7$	$R^* = H$	$\begin{cases} I \\ II \end{cases}$	$\begin{matrix} d_1^{20} \\ d_1^{20} \end{matrix}$	$\begin{matrix} 1.0744 \\ 1.0571 \end{matrix}$	$\begin{matrix} n_D^{20} \\ n_D^{20} \end{matrix}$	$\begin{matrix} 1.5037 \\ 1.4979 \end{matrix}$
$R^* = C_4H_9$	$R^* = C_2H_5$	$\begin{cases} I \\ II \end{cases}$	$\begin{matrix} d_1^{20} \\ d_1^{20} \end{matrix}$	$\begin{matrix} 1.0774 \\ 1.0782 \end{matrix}$	$\begin{matrix} n_D^{20} \\ n_D^{20} \end{matrix}$	$\begin{matrix} 1.5178 \\ 1.5168 \end{matrix}$

[WA-50; CBE No. 38] [PS]

Card 2/2

ACC NR: AP8035538

SOURCE CODE: UR/0079/69/038/010/2281/2285

AUTHOR: Abramov, V. S. (Deceased); Savintseva, R. N.; Yermakova, V. Ye.

ORG: none

TITLE: Reaction of epihalohydrins with trivalent phosphorus derivatives.  
II. Reactions of epiodohydrin with esters, amidoesters, and amides of phosphorous acid

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2281-2285

TOPIC TAGS: substituted amide, phosphonic acid derivative, phosphonate ester

ABSTRACT: Diethyl 8,γ-epoxypropylphosphonate (I) was synthesized by heating triethyl phosphite and epiodohydrin for 5 hr at 50—60°C and 2 hr at 100°C. Compounds II and III were similarly prepared. Ethyl dibutylamido-8,γ-epoxypropylphosphonate (VII) was synthesized by heating diethyl phosphorous acid dibutylamide and epiodohydrin for 2 hr at 100°C

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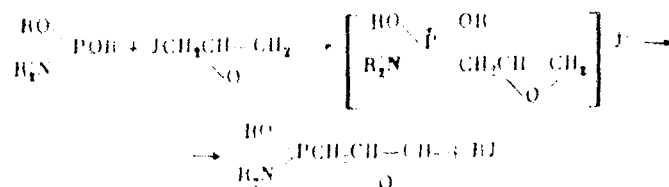
UDC: 547 26'118

ACC NR: AP8035538

Table 1  
(RO)<sub>3</sub>PCH<sub>2</sub>CH-CH<sub>2</sub>  
O

No.	R	% Yield	Bp (p in mm)	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
1	C <sub>2</sub> H <sub>5</sub>	44.8	131—131.5° (10)	1.1381	1.4430
2	C <sub>3</sub> H <sub>7</sub>	46.1	143—144 (5)	1.0759	1.4413
3	C <sub>4</sub> H <sub>9</sub>	35.3	152—153 (3)	1.0423	1.4444

and 1 hr at 120°C. Compounds IV—VI were similarly prepared. Butyl



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ACC NR: AP8035538

Table 2  

$$\begin{array}{c} \text{RO} \\ \diagup \\ \text{R}_2\text{N}-\text{P}=\text{O} \\ \diagdown \\ \text{CH}_2\text{CH}=\text{CH}_2 \\ \diagup \quad \diagdown \\ \text{O} \quad \text{O} \end{array}$$

No.	R	R'	Yield	Bp (p in mm)	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
IV	C <sub>2</sub> H <sub>5</sub>	C <sub>2</sub> H <sub>5</sub>	18.0	119—121° (1.5)	1.0464	1.4532
V	C <sub>4</sub> H <sub>9</sub>	C <sub>2</sub> H <sub>5</sub>	60.8	129 (1)	1.0248	1.4520
VI	C <sub>6</sub> H <sub>11</sub>	C <sub>2</sub> H <sub>5</sub>	38.0	164—166 (5)	1.0811	1.4425
VII	C <sub>8</sub> H <sub>17</sub>	C <sub>4</sub> H <sub>9</sub>	33.8	140—142 (1)	1.0081	1.4578

dimethylamidoethylphosphonate (64.7% yield, bp<sub>5</sub> 104—105°C, d<sub>4</sub><sup>20</sup> 0.9703, n<sub>D</sub><sup>20</sup> 1.4402) was synthesized by refluxing dibutyl phosphorous acid dimethylamide, EtI, and benzene for 2 hr at 100°C. Compounds VIII—X were similarly prepared with RI or RBr. Viscous tris(dimethylamino)-β,γ-epoxypropylphosphonium iodide (d<sub>4</sub><sup>20</sup> 1.289, n<sub>D</sub><sup>20</sup> 1.5389) was synthesized by heating phosphorous acid tris(dimethylamide) with epichlorohydrin

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ACC NR: AP8035538

Table 3  

$$\begin{array}{c} \text{RO} \\ \diagup \\ \text{R}_2\text{N}-\text{P}=\text{O} \\ \diagdown \\ \text{R} \end{array}$$

No.	R	R'	Yield	Bp (p in mm)	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
VIII	C <sub>2</sub> H <sub>5</sub>	C <sub>2</sub> H <sub>5</sub>	48.0	120° (9)	0.9603	1.4395
IX	C <sub>4</sub> H <sub>9</sub>	C <sub>2</sub> H <sub>5</sub>	49.6	102—103 (1)	0.9428	1.4432
X	C <sub>6</sub> H <sub>11</sub>	C <sub>2</sub> H <sub>5</sub>	42.5	132.5—133 (4)	0.9413	1.4458

Table 4  

$$\begin{array}{c} \text{RO} \\ \diagup \\ \text{R}_2\text{N}-\text{P}=\text{O} \\ \diagdown \\ \text{CH}_2\text{CH}=\text{CH}_2 \\ \diagup \quad \diagdown \\ \text{N} \quad \text{N} \quad \text{O} \end{array}$$

No.	R	R'	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
1	C <sub>2</sub> H <sub>5</sub>	C <sub>2</sub> H <sub>5</sub>	1.288	1.546
2	C <sub>4</sub> H <sub>9</sub>	C <sub>2</sub> H <sub>5</sub>	1.267	1.539
3	C <sub>6</sub> H <sub>11</sub>	C <sub>2</sub> H <sub>5</sub>	1.375	1.583
4	C <sub>8</sub> H <sub>17</sub>	C <sub>4</sub> H <sub>9</sub>	1.312	1.598

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ACC NR: AP8035538

to 40°C. Compounds XI—XIV were similarly prepared. Orig. art. has:  
4 tables. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: none/

Card 5/5

ACC NR: AP8034021

SOURCE CODE: CZ/9000/68/033/009/2941/2949

AUTHOR: Adlerova, E.; Protiva, M.

ORG: Research Institute of Pharmacy and Biochemistry, Prague 3

TITLE: Neurotropic and psychotropic substances. XXVIII. Derivatives  
of 1-benzylcyclohexylamine and 1-benzylcyclopentylamine

SOURCE: Collection of Czechoslovak chemical communications, v. 33,  
no. 9, 1958, 2941-2949

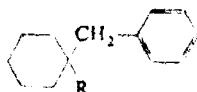
TOPIC TAGS: aromatic amine, substituted amide, central nervous system  
stimulant, anticonvulsant drug

ABSTRACT: 1-Benzylcyclohexylamine(I) (method B, 80% yield) was synthesized by refluxing a mixture of N-(1-benzylcyclohexyl) formamide(II), EtOH, and 10% NaOH for 48 hr with subsequent steam distillation. Compound II (method A, 75% yield) was prepared by adding 1-benzylcyclohexanol to HOAc and H<sub>2</sub>SO<sub>4</sub> at 0°C with subsequent addition of NaCN, HOAc, and H<sub>2</sub>SO<sub>4</sub> at 10—20°C, followed by addition to alkalized H<sub>2</sub>O at 0°C. Compound III was prepared by the reaction of I, BzCl, and NaOH. Compound IV (method C, 90% yield) was obtained by adding II in ether to LiAlH<sub>4</sub> in

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ACC NR: AP8034021



- I, R = NH<sub>2</sub>  
 II, R = NHCHO  
 III, R = NHCOC<sub>6</sub>H<sub>5</sub>  
 IV, R = NHCH<sub>3</sub>  
 V, R = N(CH<sub>3</sub>)<sub>2</sub>  
 VI, R = N<sup>(+)</sup>(CH<sub>3</sub>)<sub>3</sub> I<sup>(-)</sup>  
 VII, R = N<sup>(+)</sup>(CH<sub>3</sub>)<sub>2</sub>CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub> Br<sup>(-)</sup>  
 VIII, R = NHCO-  
 IX, R = NHCOC<sub>6</sub>H<sub>5</sub>  
 X, R = NHCO-  
 XI, R = NHCOC<sub>6</sub>H<sub>5</sub>  
 XII, R = NHCH<sub>2</sub>-  
 XIII, R = NHCH<sub>2</sub>CH<sub>2</sub>N<sup>(+)</sup>(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>

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ACC NR: AP8034021

Table 1

Compound	Method (Yield) %	M.p., °C (solvent) or b.p., °C Torr
I	*	160 - 162 20
I-HCl	—	285 - 292 (ethanol)
II	*	94 - 95.5 (cyclohexane) 162 - 163 0.3
III	*	102 - 103 (ethanol, water)
IV-HCl	C (90)	240 - 242 (ethanol)
V	D (89)	160 - 162 12
V-HCl	—	214 - 215 (ethanol, water)
VI	—	260 - 262 (ethanol, water)

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ACC NR: AP8034021

Table 1. (Cont.)

VII	—	130—131 (ethanol-ether)
VIII	•	146.5—147.5 (ethanol)
VIII- $C_4H_4O_4^b$	—	135—137 (acetone)
IX	•	127—128.5 (ethanol)
X	E, F (71, 45)	177—177.5 (ethanol)
XI	E, F (55, 40)	151.5—153 (ethanol)
XII	•	100—101.5 (petr. ether)

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ACC NR: AP8034021

Table 1. (Cont.)

XIII	•	160—161/3
XIII-2 $C_4H_4O_4^b$	—	119.5—120 (ethanol)
XIV	B (85)	126—140/20°
XIV-HCl	—	209—210 (ethanol-ether)
XV	A (79)	70.5—71.5 (cyclohexane) 159—161/0.05
XVI-HCl	•	167—168 (ethanol-ether)
XVII	•	152—154/12
XVII-HCl	—	204—204.5 (ethanol)

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ACC NR: AP8034021

Table 1. (Cont.)

XVIII	—	260—265 decomp (ethanol-ether)
XIX	E (71)	123.5—124.5 (ethanol)
XIX-C <sub>4</sub> H <sub>4</sub> O <sub>4</sub> <sup>b</sup>	—	111—112.5 (ethanol-ether)
XX	E, F (65, 42)	166—167 (ethanol)
XXI	E, F (50, 48)	144—145 (ethanol)
XXII	A	88—90 (cyclohexane)
XXIII-HCl	B (72)	246—248 (ethanol)

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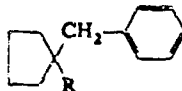
ACC NR: AP8034021

ether, refluxing for 3 hr, and decomposing with alkalized water. Compound V (method D, 89% yield) was prepared by adding I to formic acid with subsequent addition of HCHO, and heating to 95°C for 20 hr. Compounds VI and VII were obtained by known procedures. Compound VIII (method E, 80% yield) was obtained by refluxing nicotinoyl chloride hydrochloride, I, and pyridine for 2 hr. Compounds IX (method F, 85% yield), X, and XI were obtained by acylation of I with phenylacetyl chloride, 3,4,5-trimethoxybenzoyl chloride, and 3,3-diphenylpropionyl chloride, respectively, in boiling benzene. Compound XII (68% yield) was prepared by adding N-(1-benzylcyclohexyl)-3,4,5-trimethoxybenzamide (X) in diethylene glycol dimethyl ether to LiAlH<sub>4</sub> in diethylene glycol dimethyl ether and stirring for 16 hr at 120°C. Compound XIII (46% yield) was obtained by allowing a mixture of I, diethylaminoethyl chloride, and K<sub>2</sub>CO<sub>3</sub> to stand for 2 days. 1-Benzylcyclopentylamine (XIV) was synthesized by method B from N-(1-benzylcyclopentyl) formamide (XV), which was prepared from 1-benzylcyclopentanol by method A. Compound XVI (78% yield of hydrochloride) was obtained from XV by method C, and XVII (79% yield) was obtained from XIV by method D. Compound XVIII was prepared by known procedures. Compound XIX was obtained by method E

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ACC NR: AP8034021

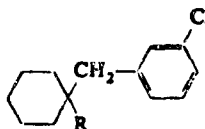
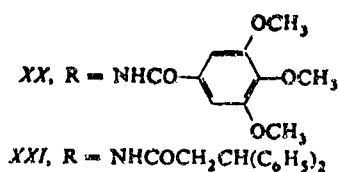


- XIV, R = NH<sub>2</sub>  
 XV, R = NHCHO  
 XVI, R = NHCH<sub>3</sub>  
 XVII, R = N(CH<sub>3</sub>)<sub>2</sub>  
 XVIII, R = N(CH<sub>3</sub>)<sub>3</sub> I<sup>(+)</sup>  
 XIX, R = NHCO-C<sub>6</sub>H<sub>4</sub>-N

from XIV, and XX and XXI were obtained by method F from XIV. 1-(3-chlorobenzyl)cyclohexylformamide (XXII) was prepared by method A from 1-(3-chlorobenzyl)cyclohexanol, and XXIII was obtained from XXII by method B. LD<sub>50</sub> of I, VI, XIII, XIV, XVI, and XVII (iv in mice) ranges from 25 to 54 mg/kg. LD<sub>50</sub> of VI, VII, and XVIII ranges from 7.5 to 35 mg/kg, and LD<sub>50</sub> (per os) of II, III, VIII-XI, XV, XIX-XXII ranges from 750 to 2500 mg/kg. Compounds XIV, XXIII, and especially I displayed a slight CNS-stimulating, anorectic (10% of the effect of

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ACC NR: AP8034021



- XXII, R = NHCHO  
 XXIII, R = NH<sub>2</sub>

amphetamine), and hypotensive effect. Compound XVII displayed a slightly stimulating effect, whereas IV, XIII and XVI displayed only a short-term hypotensive effect. Compounds VI, VII, and XVIII also exhibited a hypotensive effect. Compound VII displayed a spasmolytic effect and curare-type myorelaxation. Compounds II, XV, and XXII displayed an anticonvulsant effect toward pentetrazol and toward audiogenic convulsions. The maleate of XIX produced a protracted slight decrease in blood pressure

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ACC NR: AP8034021

and a peripheral vasodilating effect ( $LD_{50} = 150$  mg/kg). Compounds XI, XX, and XXI displayed certain indications of an antiinflammatory effect. A slight antihistaminic effect was exhibited *in vitro* by I and a trace of such an effect was displayed by XXI in the detoxication test in guinea pigs *in vivo* when administered orally. [Original article in English]  
Orig. art. has: 1 table. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 24Nov67/ ORIG REF: 001/ OTH REF: 024

Card 10/10

ACC NR: AP8035409

SOURCE CODE: UR/0240/68/000/010/0010/0015

AUTHOR: Akhmedov, B. K.

ORG: Institute of General and Communal Hygiene im. A. N. Sysin, AMN SSSR, Moscow (Institut obshchey i kommunal'noy gigiyeny AMN SSSR); Uzbek Scientific Research Institute of Sanitation, Hygiene, and Occupational Diseases (Uzbekskiy nauchno-issledovatel'skiy institut sanitariy, gigiyeny i profzabolevaniy)

TITLE: Hygienic significance of Methaphos as a contaminant of atmospheric air

SOURCE: Gigiyena i sanitariya, no. 10, 1968, 10-15

TOPIC TAGS: organic phosphorus insecticide, air pollution, cholinesterase, nucleic acid

ABSTRACT: The insecticide Methaphos ( $LD_{50}$  35-40 mg/kg in mice, 25-30 mg/kg in rats) lowers cholinesterase (ChE) activity in the human organism when inhaled ( $0.4$  mg/m<sup>3</sup>). Averaged data for Methaphos contamination of air after application of a 30% emulsion of Methaphos to vegetable plots 3 and 5 hectares in area are shown in Fig. 1. Highest concentrations occurred in the daytime. Comparative first-day concentration data are shown in

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UDC: 614.715:615.77/.25

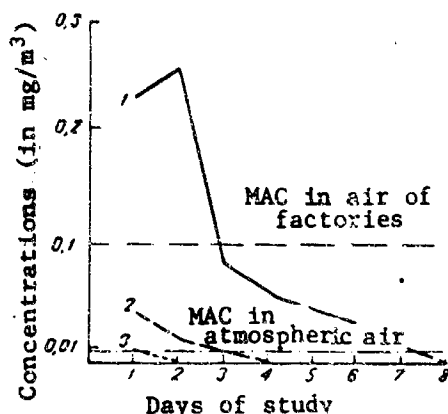


Fig. 1. Concentration of Methaphos in atmospheric air after treating the field

1 - at 500 m distance; 2 - at 750 m; 3 - at 1000 m

Table 1, where 0.008 mg/m<sup>3</sup> is the maximum allowable concentration (MAC) of Methaphos. Results of studies of the reflex action of Methaphos are shown in Table 2. In encephalographic studies (8-channel "Orion"

Table 1

Concentration of Methaphos in air, mg/m <sup>3</sup> , on 1st day					
3 hectare plot			5 hectare plot		
500 m	750 m	1000 m	500 m	750 m	1000 m
0.055--	0.01--	<0.008	0.153--	0.019--	<0.008
0.08	0.02		0.330	0.041	

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Table 2

Method of study	Concentration (mg/m <sup>3</sup> )	
	Threshold	Subliminal
Olfactory detection	0.0125	0.0114
Light sensitivity of eyes	0.0103	0.0091
Conditioned electrocortical reflex	0.0091	0.0080

instrument) with 0.0091 mg/m<sup>3</sup> concentration of the gas, inhibition of  $\alpha$ -rhythm appeared from the moment of feeding the gas until the moment the light was turned on. Changes in chronaxie of antagonistic muscles in rats, which indicate disturbances in the subordinating effects of the cerebral cortex, are shown in Fig. 2. The general condition, behavior, and weight of the rats during poisoning did not differ from those of the control group. Changes in ChE activity are shown in Fig. 3. In rats of the 1st group, in the last half of poisoning there was noted a gradual increase in the amount of coproporphyrin excreted with the urine, a sensitive non-specific indicator of the effect of low-intensity factors on the organism. In the last half of the experiment, there was also noted a gradual decrease in the excretion of 17-ketosteroids in rats of the 1st and 2nd groups. In rats of the 1st group (and, to a lesser extent, of the 2nd group), Methaphos caused the development of various

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ACC NR: AP8035409

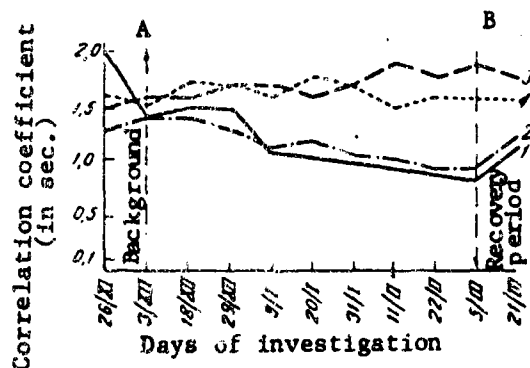


Fig. 2. Changes in chronaxie of antagonistic muscles in rats during inhalation of Methaphos vapors.

A--B - period of poisoning;  
1 - 1st group (0.072 mg/m<sup>3</sup>);  
2 - 2nd group (0.024 mg/m<sup>3</sup>);  
3 - 3rd group (0.008 mg/m<sup>3</sup>);  
4 - 4th group, control (clean air).

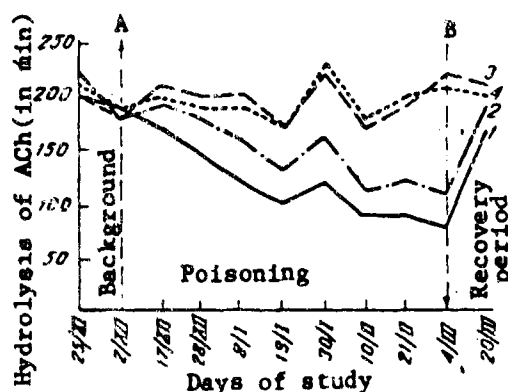


Fig. 3. Change in activity of ChE of whole blood in rats during inhalation of Methaphos vapors.

A--B - period of poisoning;  
1 - 1st group (0.072 mg/m<sup>3</sup>);  
2 - 2nd group (0.024 mg/m<sup>3</sup>);  
3 - 3rd group (0.008 mg/m<sup>3</sup>);  
4 - 4th group, control (clean air).

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ACC NR: AP8035409

degrees of dyscirculatory, proliferative, and inflammatory processes, and, in some cases, toxic encephalitis, lymphocytic myocarditis, hepatitis, and interstitial pneumonia. In all organs, the content of RNA in the parenchymatous cellular elements decreased, and the content of DNA in the cells of the infiltrators increased. Methaphos affects the content of nucleic acids and glycogen in the heart muscle and liver.

Orig. art. has: 3 figures and 1 table.

[WA-50; CBE No. 38] [FT]

SUB CODE: 06/ SUBM DATE: 03Jan67/ ORIG REF: 004

Card 5/5

ACC NR: AP8034738

SOURCE CODE: GE/9007/68/038/03-/0113/0118

AUTHOR: Almasi, L.; Hantz, A.

ORG: Chemistry Institute, Academy of the Romanian Socialist Republic, Cluj (Chemisches Institut der Akademie der Sozialistischen Republik Romania)

TITLE: Heteroorganic compounds. XXVIII. O,O-Dialkyl S-(aryl-disulfido) dithiophosphates .

SOURCE: Journal fur praktische chemie, v. 30, no. 3-4, 1968, 113-118

TOPIC TAGS: phosphate ester, aromatic sulfur compound, dithiophosphate ester

ABSTRACT: Potentially biologically active green, oily (VIII is crystalline) O,O-dialkyl S-(aryl-disulfido) dithiophosphates (I—VIII) (60—70% yield) were synthesized by allowing the corresponding dialkyl dithiophosphoric acids to react with the corresponding piperidino aryl disulfides (IX—XII) and re-crystallizing I—VIII at -40 to -60°C.

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ACC NR: AP8034738



where

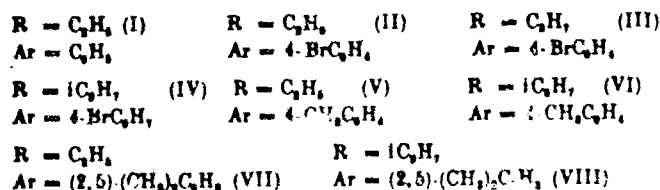


Table 1

Compd.	Mp, °C	n <sub>D</sub> <sup>20</sup>	d <sub>4</sub> <sup>20</sup>
I	—	1,6265	1,2755
II	—	1,6435	1,4737
III	—	1,6308	1,4223
IV	—	1,6211	1,3989
V	—	1,6213	1,2553

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ACC NR: AP8034738

Table 1. (Cont.)

VI	—	1,5972	1,1942
VII	—	1,6121	1,2203
VIII	37—38	—	—

Compounds IX—XII (80% yield) were prepared by adding a mixture of piperidino sulfur chloride, pyridine, and petroleum ether to the

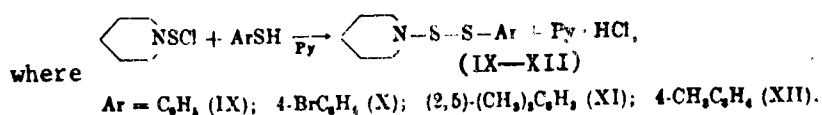


Table 2

Compd.	Bp, °C (p in mm)	n <sub>D</sub> <sup>20</sup>	d <sub>4</sub> <sup>20</sup>
IX	112/0,2	1,6097	1,1436
X	60**)		

Card 3/4

ACC NR: AP8034738

Table 2. (Cont.)

XI	127/0,2	1,5952	1,1052
XII	128/0,5	1,5986	1,1145

\*) Mp

corresponding thiophenols, pyridine, and petroleum ether. Orig. art.  
 has: 2 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 20Nov65/ ORIG REF: 004/ OTH REF: 001  
 SOV REF: 001

Card 4/4

ACC NR: AP8033576

SOURCE CODE: UR/0062/68/000/010/2290/2293

AUTHOR: Arbuzov, B. A.; Vinogradova, V. S.; Zolova, O. D.

ORG: Chemical Institute im. A. M. Butlerov, Kazan' State University  
im. V. I. Ul'yanov-Lenin (Khimicheskii institut Kazanskogo gosudarstvennogo universiteta)

TITLE: Some reactions of 2,2,2-trialkoxo- $\Delta^4$ -oxaphospholenes

SOURCE: AN SSSR. Izvestiya, Seriya khimicheskaya, no. 10, 1968, 2290-2293

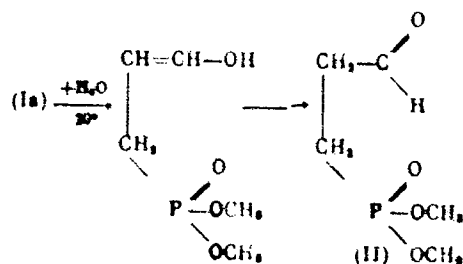
TOPIC TAGS: heterocyclic oxygen compound, phosphorus compound, aldehyde, heterocyclic phosphorus compound

ABSTRACT:  $\beta$ -(Dimethylphosphono)propionaldehyde (II) (bp<sub>0.02</sub> 95—97°C, 5 g yield) was synthesized by adding 25.5 g 2,2,2-trimethoxy- $\Delta^4$ -oxaphospholene (Ia) to water in ether. Compound II (bp<sub>3</sub> 103—105°C,

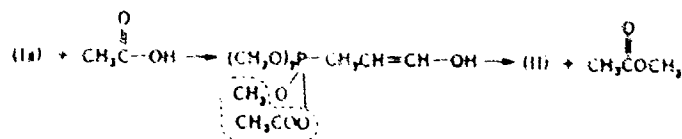
Card 1/3

UDC: 542.91+661.718.1

ACC NR: AP8033576



7.7 g yield) was also obtained by adding glacial HOAc to Ia (from 5.6 g acrolein and 12.4 g  $\text{Me}_3\text{PO}_3$ ).  $\beta$ -(Dimethylphosphono)propenyl acetate (III)

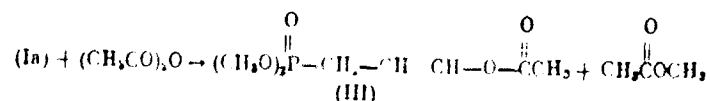


(bp<sub>0.02</sub> 104—105°C, 9.5 g yield) was obtained by adding  $\text{Ac}_2\text{O}$  to Ia (from 6.7 g acrolein and 15 g  $\text{Me}_3\text{PO}_3$ ). Acid hydrolysis of III yielded II.

Card 2/3

- 14 -

ACC NR: AP8033576



Compound Ia and phosphoranes of more complex structure, containing Ac at the unsaturated C of the ring and Me or Ph at the C attached to P, are stable in the absence of moisture and oxygen.

[WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 13Feb68/ ORIG REF: 005/ OTH REF: 003

Card 3/3

ACC NR: AP8037851

SOURCE CODE: UR/0409/68/000/005/0831/0832

AUTHOR: Ardashov, B. I.; Zarif'yan, A. S.

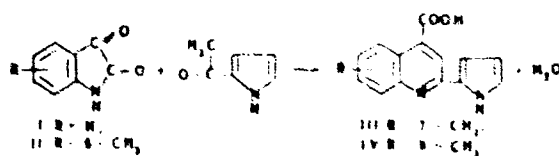
ORG: Novocherkassk Polytechnic Institute (Novocherkasskiy politekhnicheskii institut)

TITLE: Synthesis of atophan analogs containing pyrrole ring

SOURCE: Khimiya geterotsiklicheskh soedineniy, no. 5, 1968, 831-832

TOPIC TAGS: heterocyclic oxygen compound, heterocyclic nitrogen compound, biologically active compound

ABSTRACT: In a search for new plant growth stimulators, a series of new atophan analogs (I-IV) was synthesized by the condensation of isatin and its derivatives with 2-acetylpyrrole:



Card 1/3

UDC: 547.832.5:74.07:630.54



ACC NR: AP8037851

Table 1. Properties of compounds synthesized

Compound	mp, °C	Sublimation temperature, °C	Formula	Found, %		Calculated, %		Yield
				C	H	C	H	
I	305	260	$C_{14}H_{10}N_2O_2$	70.36	4.18	70.6	4.2	27
II	315	270	$C_{14}H_{12}N_2O_2$	71.21	4.71	71.4	4.8	34
III	240	200	$C_{13}H_{12}N_2O_2$	71.28	4.76	71.4	4.8	20
IV	285	235	$C_{13}H_{12}N_2O_2$	71.60	4.83	71.4	4.8	14

Table 2. Effect of growth stimulators on the height of plants

Compound	Plant height in cm
I	57
II	74
IV	70
Control	56

Card 2/3

ACC NR: AP8037851

The reaction mixture was boiled on a water bath for 6 hrs in alcohol in the presence of KOH. The new compounds are characterized in Table 1. The biological activity of the new compounds was studied on pea plants. The results are reported in Table 2. [WA-50; CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 27Apr66/ ORIG REF: 005/ OTH REF: 001

Card 3/3

ACC NR: AP8035705

SOURCE CODE: UR/0394/68/000/C10/0047/0048

AUTHOR: Avrov, O. Ye; Belous, A. G.; Zhurbina, N. S., Zaveryukhin, V. I.

ORG: VNII of Agricultural Microbiology (VNII sel'skokhozyaystvennoy mikrobiologii); Ukrainian NII of Irrigation Agriculture (Ukrainskiy NII oroshayemogo zemledeliya)

TITLE: Effect of various herbicides on soybean tuber bacteria

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 10, 1968, 47-48

TOPIC TAGS: phenol derivative, urea compound, soil bacteriology, soil type

ABSTRACT: Data concerning the effect of sodium pentachlorophenoxide(I), O-isopropyl N-(3-chlorophenyl)carbamate(II), Eptam (III), Amiben (IV), Trifluralin (V), and Prometrin (VI) on soybean tuber bacteria grown in bean agar are shown in Table 1. Under these conditions, soybean tuber bacteria are more sensitive than lupine and pea bacteria to herbicides which are phenols, chlorophenoxy compounds and urea derivatives; but in dark-brown, weak solonetz, light clayey soil, hardly any toxic effect was noted, as shown in Table 2. The application of I-VI did not affect the

Card 1/3

UDC: 632.954:576.8+635.655

ACC NR: AP8035705

Table 1

Variants	Number of tuber bacteria (min/ml) in relation to concentration of bacteria				
	0.01%	0.1%	0.5%	1.0%	5.0%
Control	956	956	956	956	956
I	1794	544	0	0	0
II	075	0	0	0	0
III	—	1205	1190	350	015
IV	—	1295	1341	1220	1264
V	—	1028	1140	115	0
VI	—	1285	1298	1301	1208

Table 2

Variants	Number of tuber bacteria (min per 1 g soil) after application of herbicides		
	In 5 days	In 10 days	In 20 days
Control			
I, mg/kg soil	454	439	422
II	435	427	423
III	369	361	331
IV	275	220	178

Card 2/3

ACC NR: AP8035705

Table 2. (Cont.)

IV, mg/kg soil			
5	345	326	351
50	311	301	345
500	251	209	213

development of the green mass of the soybeans. Application of IV promoted the formation of tubers. Orig. art. has: 4 tables.

[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 19Apr67

Card 3/3

ACC NR: AP8034901

SOURCE CODE: UR/0360/68/000/005/0044/0046

AUTHOR: Azerbayev, I. N.; Molchanova, T. Kh.; Krasnomolova, L. P.; Dzhamaletdinova, M. K.

ORG: none

TITLE: Thiocyanacetate esters of tertiary acetylenic alcohols

SOURCE: AN KazSSR. Izvestiya. Seriya khimicheskaya, no. 5, 1968, 44-46

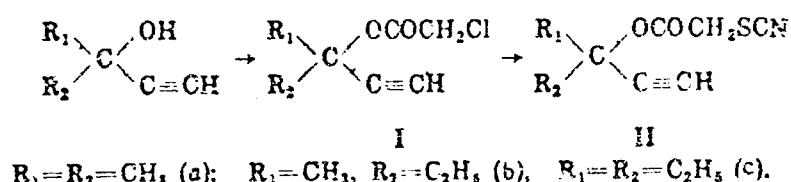
TOPIC TAGS: acetate ester, acetylene compound, alcohol, fumigant, insecticide, antiseptic

ABSTRACT: The title compounds, which are potential fumigant insecticides and antiseptics, were synthesized to study their physiological activity. 1-Ethynyl-1-methylethyl chloroacetate (Ia) (70% yield, bp<sub>30</sub> 87°C, n<sub>D</sub><sup>20</sup> 1.4570, d<sub>4</sub><sup>20</sup> 1.0401), 1-ethynyl-1-methylbutyl chloroacetate (Ib) (70% yield, bp<sub>2</sub> 62-63°C, n<sub>D</sub><sup>20</sup> 1.4630, d<sub>4</sub><sup>20</sup> 1.0703), 1-ethynyl-1-ethylbutyl chloroacetate (Ic) 71% yield, bp<sub>4</sub> 82-84°C, n<sub>D</sub><sup>20</sup> 1.4670, d<sub>4</sub><sup>20</sup> 1.080), and 1-bromoethynyl-1-methylethyl chloroacetate (Id) (45% yield, bp 86-92°C, n<sub>D</sub><sup>20</sup> 1.4820, d<sub>4</sub><sup>20</sup> 1.419) were synthesized by adding chloroacetyl chloride to the corresponding carbinols in ether and pyridine with subsequent heating.

Card 1/2

UDC: 547.823+547.362

ACC NR: AP803490i



1-Ethynyl-1-methylethyl thiocynoacetate (IIa) (78% yield, bp<sub>8</sub> 120—121°C, n<sub>D</sub><sup>20</sup> 1.4880, d<sub>4</sub><sup>20</sup> 1.129), 1-ethynyl-1-methylbutyl thiocynoacetate (IIb) (80% yield, bp<sub>2</sub> 109—110°C, n<sub>D</sub><sup>20</sup> 1.4930, d<sub>4</sub><sup>20</sup> 1.228), and 1-ethynyl-1-ethylbutyl thiocynoacetate (IIc) (4 g yield from 5 g Ic, bp<sub>8</sub> 134—136°C, n<sub>D</sub><sup>20</sup> 1.5010, d<sub>4</sub><sup>20</sup> 1.112) were obtained by adding Ia—Ic to KSCN in EtOH and heating. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 21Oct67/ ORIG REF: 001/ OTH REF: 008

Card 2/2

ACC NR: AP8035418

SOURCE CODE: UR/0240/68/000/010/0107/0108

AUTHOR: Babayants, R. A.; Rozin, D. G.

ORG: Andizhan Regional Sanitary Epidemiological Station (Andizhanskaya oblastnaya sanepidstantsiya); Andizhan Zonal Station of the Uzbek NIZR (Andizhanskaya zonal'naya stantsiya Uzbekskoy NIZR)

TITLE: Problems of industrial hygiene in gathering cotton treated with Butylphos

SOURCE: Gigiyena i sanitariya, no. 10, 1968, 107-108

TOPIC TAGS: industrial hygiene, defoliant agent

ABSTRACT: Samples of air, cotton leaves, and cotton wool taken from plots treated with Butylphos (2 and 4 kg/ha) were analyzed for Butylphos content over a 16-day period. The results are shown in Table 1. Maximum defoliation occurred on the 11th day. The correlation between the increase in Butylphos content in the leaves and the time of their falling off suggests that the basic storehouse of the defoliant is in the stem. Penetration of the compound into the leaves is probably associated with biochemical changes which occur in them after application of

Card 1/2

UDC: 613.632:615.777.25:633.91

ACC NR: AP8035418

Table 1

Day of taking samples	Content of Butylphos in air (in mg/l)	Content of Butylphos in leaves during its consumption		Content of Butylphos in cotton wool during consumption	
		2 kg/ha	4 kg/ha	2 kg/ha	4 kg/ha
2nd	0	1,32	1,52	1,5	3,0
4th	0	0,4	0,8	1,02	1,22
5th	0	0,4	0,7	1,02	1,02
6th	0	0,35	0,7	1,02	1,02
8th	1	—	—	Not determined	Not determined
9th	1	0,25	0,7	—	—
11th	1	1,6	2,2	"	"
13th	1	1,1	1,4	"	"
14th	1	0,9	1,1	"	"
16th	1	0,1	0,1	"	"

the defoliant. On the first 5 days after application, 0.1 mg of Butylphos was observed in wash samples from workers' hands, but on the 10th day, none was detected. Orig. art. has: 1 table.

[WA-50; CBE No. 38][FT]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8034652

SOURCE CODE: UR/0073/68/034/010/1020/1025

AUTHOR: Babichev, F. S.; Kutrov, G. P.; Kornilov, M. Yu.

ORG: Kiev State University im. Shevchenko (Kiyevskiy gosudarstvennyy universitet)

TITLE: Isoelectronic analogs of indolizine. 7. Acylation of pyrrolo[1,2-a]-benzimidazoles

SOURCE: Ukrainskiy khimicheskii zhurnal, v. 34, no. 10, 1968, 1020-1025

TOPIC TAGS: benzimidazole, indole derivative, heterocyclic nitrogen compound

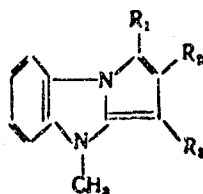
ABSTRACT: The acyl derivatives of pyrrolo[1,2-a]benzimidazoles characterized in the table were obtained by formylation, acetylation, and benzoylation of the appropriate pyrrolo[1,2-a]benzimidazoles. The formyl derivatives are formed in the reaction of  $\text{POCl}_3$ -dimethylformamide complex with the pyrrolo[1,2-a]benzimidazoles in dimethylformamide at 0--60°C. The acetyl derivatives were obtained by the

Card 1/4

UDC: 547:542.951.12

- 20 -

ACC NR- AP8034652

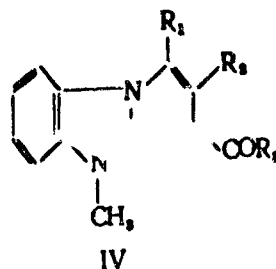
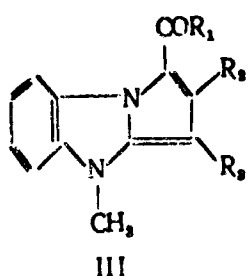


Compd	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	Mp, °C	% Yield
1	CHO	CH <sub>3</sub>	H	140 <sup>a</sup>	35
2	CHO	CH <sub>3</sub>	CH <sub>3</sub>	222 <sup>b</sup>	61
3	CH <sub>3</sub>	CH <sub>3</sub>	CHO	184 <sup>a</sup>	60
4	CHO	C <sub>6</sub> H <sub>5</sub>	H	142 <sup>a</sup>	64
5	COCH <sub>3</sub>	CH <sub>3</sub>	H	157 <sup>a</sup>	78
6	COCH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	H	132 <sup>b</sup>	53
7	COCH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	H	147 <sup>b</sup>	75
8	COCH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	188 <sup>b</sup>	77
9	COC <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	H	145 <sup>b</sup>	53
10	COC <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	CH <sub>3</sub>	192 <sup>b</sup>	47
11	COC <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	H	211 <sup>b</sup>	50
12	CH <sub>3</sub>	CH <sub>3</sub>	COC <sub>6</sub> H <sub>5</sub>	168 <sup>b</sup>	87
13	COC <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	219 <sup>b</sup>	71

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ACC NR- AP8034652

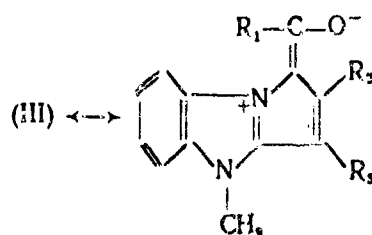
reaction of acetic anhydride with the pyrrolo[1,2-a]benzimidazoles at 100°C. The treatment of pyrrolo[1,2-a]benzimidazoles with benzoyl chloride in pyridine at 100°C gave the benzoyl derivatives. The acylation gave two series to isomeric aldehyde and ketone derivatives of pyrrolo[1,2-a]benzimidazoles with acyl groups in position 1 (compound III) and in position 3 (compound IV):



The carbonyl group in these compounds is conjugated with an N atom and their molecules are polarized not like aldehydes and ketones but like carboxylic acid amides:

Card 3/4

ACC NR: AP8034652



Therefore, the carbonyl group cannot be detected by the usual reactions for CO group, but it is shown on the IR absorption spectra. The PMR and UV spectra of the compounds III and IV revealed that the substitution takes place at the position 1 or 3. When both active positions 1 and 3 are free, then acylation takes place at position 1. Orig. art. has: 2 tables and 3 figures. [WA-50; CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 17May68/ ORIG REF: 005/ OTH REF: 002

Card 4/4

ACC NR: AP8032553

SOURCE CODE: UR/0017/68/000/010/0024/0025

AUTHOR: Belousov, M.

ORG: none

TITLE: Chemical warfare

SOURCE: Voyennyye znaniya, no. 10, 1968, 24-25

TOPIC TAGS: chemical warfare, chemical warfare agent, phosgene, V agent, sarin, soman

ABSTRACT: The article states that chemical and biological warfare and testing is in progress in South Vietnam, and attributes outbreaks of bubonic plague to such testing. In tests of HCN and phosgene, 2-5 min exposure of 0.4-0.7 ml/l HCN and 1.5-3.0 ml/l phosgene have produced kills. Improved agents include V-gases, sarin, soman, iprit, lewisite and related secret compounds. These agents can be disseminated by aircraft. War gases are classified as: 1) neuromuscular, which are extremely toxic and quick acting on the CNS; 2) contact poisons, which penetrate the skin and mucous membranes; 3) compounds which attack the lungs; and 4) less volatile compounds which act after contact is made. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none

Card 1/1

ACC NR: AP8033574

SOURCE CODE: UR/0062/68/000/010/2278/2281

AUTHOR: Bel'skiy, V. Ye.; Yefremova, M. V.; Panteleyeva, A. R.

ORG: Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov, Academy of Sciences SSSR (Institut organicheskoy i fizicheskoy khimii Akademii nauk SSSR)

TITLE: Kinetics of the hydrolysis of  $\alpha$ -substituted phenyl dialkylphosphinates

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1968, 2278-2281

TOPIC TAGS: kinetic chemical reaction rate, phosphinic acid, aromatic ester / phosphinate ester

ABSTRACT: Phenyl bromomethylchloromethylphosphinate (II) (50% yield, bp<sub>0.0001</sub> 127—129°C, mp 49—50°C) was synthesized by heating phenyl bis(chloromethyl)phosphinate (I) with excess KBr in HCONMe<sub>2</sub> for 3.5 hr. Phenyl chloromethylethylphosphinate (IV) (85% yield, bp<sub>0.04</sub> 109°C) was prepared by allowing ethylchloromethylphosphinyl chloride to react with phenol in ether in the presence of Et<sub>3</sub>N at 0—5°C. Hydrolysis constants of I—IV are shown in Table 1. In the water hydrolysis, the

Card 1/5

UDC: 541.127+542.938+661.718.1

ACC NR: AP8033574

Table 1

Compd	R <sub>1</sub>	R <sub>2</sub>	k <sub>OH</sub> · 10 <sup>4</sup> (M-sec)		k <sub>H<sub>2</sub>O</sub> · 10 <sup>4</sup> sec <sup>-1</sup>		
			25°	10°	95°	80°	60°
I	CH <sub>2</sub> Cl	CH <sub>2</sub> Cl	99	33			2.8
II	CH <sub>2</sub> Cl	CH <sub>2</sub> Br	59	25	7.0	4.6	2.7
III	CH <sub>2</sub> J	CH <sub>2</sub> J	16.8	8.9	3.5	2.1	1.12
IV	CH <sub>2</sub> Cl	C <sub>2</sub> H <sub>5</sub>	1.6	0.74	0.44	0.20	0.092

initial concentrations of the substrates ranged from 0.01 to 0.02 M. In the alkaline hydrolysis, they were less than 10<sup>-4</sup> M, and the concentration of KOH was 10<sup>-3</sup> M for the hydrolysis of I—III and 5 × 10<sup>-3</sup> M for IV. The rate constants for I—IV in both reactions decrease in the order Cl > Br > I > CH<sub>3</sub>. The graph of the relation log k = ρΣσ\*, where Σσ\* = σ<sub>R1</sub>\* + σ<sub>R2</sub>\*, indicates a correlation between the rate constants and the induction constants σ\* (Taft) of the substituents. The value of ρ is 1.48 at 25°C for alkaline hydrolysis and 1.36 at 80°C for water hydrolysis, and the correlation coefficient is 0.995 and 0.997, respectively. It has previously been shown that spatial effects of the

Card 2/5



ACC NR: AP8033574

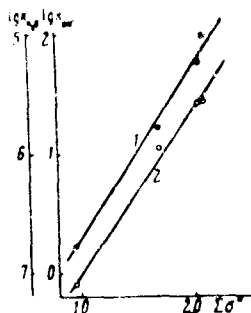


Fig. 1. Relation of  $\log k$  to  $E_s^*$  for reactions with  $\text{OH}^-$ -ion at  $25^\circ\text{C}$  (1) and with  $\text{H}_2\text{O}$  at  $80^\circ\text{C}$  (2).

P-substituents and hyperconjugation of the electron pairs of C—H bonds with 3d orbits of P can significantly affect the reactivity of organo-phosphorus compounds. However, the closeness of the steric constants  $E_s^0$  for  $R_1$  and  $R_2$  in I—IV and the same number of  $\alpha\text{-C—H}$  bonds in all  $R_1$  and  $R_2$  apparently do not favor these effects in the given cases. The Arrhenius equation parameters shown in Table 2 may be somewhat in error since the high rate of the alkaline hydrolysis and the very low rate of the water hydrolysis necessitate using a narrow range of temperatures. When the reactions of a substrate with two reagents ( $\text{H}_2\text{O}$  and  $\text{OH}^-$ ) have the same mechanism, the change in the Arrhenius equation parameters

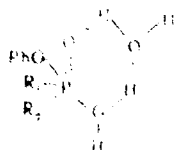
Card 3/5

ACC NR: AP8033574

Table 2

Compd	$\text{OH}^-$			$\text{H}_2\text{O}$		
	$E_a$ kg-cal/m	$\lg A$	$\Delta S^\ddagger$ entropy units	$E_a$ kg-cal/m	$\lg A$	$\Delta S^\ddagger$ entropy units
I	12.3	10.04	-10.3	16.0	4.32	-40.8
II	9.4	8.65	-20.9	13.9	3.04	-46.6
III	7.1	6.41	-31.1	16.4	4.19	-41.2
IV	9.1	6.83	-29.7	24.4	8.04	-23.7

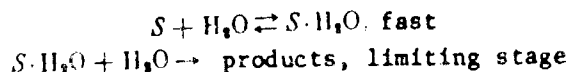
must be compensatory. The fact that I—III do not obey this principle indicates that the mechanisms of the limiting stages of alkaline and water hydrolysis differ. Judging by Table 2, the activation entropy for both reactions has the usual value for  $S_N2$  reactions. However, the values of  $\Delta S^\ddagger$  in the reaction with water are considerably more negative, and this indicates a more ordered structure of the activated complex. This ordered structure may be a cyclic transition state, e.g.,



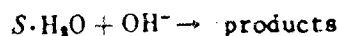
Card 4/5

ACC NR: AP8033574

The participation of two molecules of water in the limiting stage seems most probable and obeys the following mechanism. The possibility



of the participation of the hydrated form of the substrate  $S \cdot H_2O$  in the limiting stage of alkaline hydrolysis was not considered previously. It may participate in an activated complex in a mechanism which may include a limiting stage of the type:



In this case, the existence of a cyclic transition state is less likely. Orig. art. has: 2 tables and 1 figure. [WA-50; CBE No. 38][FT]

SUB CODE: 0// SUBM DATE: 08Feb68/ ORIG REF: 010/ OTH REF: 002

Card 5/5

ACC NR: AP8037580

SOURCE CODE: UR/0394/68/006/011/0038/0040

AUTHOR: Bersonova, K. A.

ORG: Institute of Experimental Plant Biology, AN UzSSR (Institut eksperimental'noy biologii rasteniy AN UzSSR)

TITLE: Movement of Monuron in water, soil, and reed rhizomes

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 11, 1968, 38-40

TOPIC TAGS: urea compound, drainage system, soil, herbicide

ABSTRACT: The movement of Monuron (I) in water, soil, and reed rhizomes was studied in connection with the use of granulated forms of urea derivatives against reeds and other aquatic flora in drainage systems. Soil was placed to a depth of 5 cm in two 6 l beakers, and 4 l  $H_2O$  was added to each beaker. Granules of clay, sand, and I (1 mg I per 1 ml  $H_2O$ ) were placed on the soil surface. The concentration of I in the top layer of water was 0.1 mg/ml, 0.5 mg/ml in the 2-4 cm layer, and some I probably remained in the soil. The distribution and mobility of I was also studied in soil saturated with water, i.e., under drainage conditions. Soil was placed to a depth of 15 cm in a rectangular vessel, and the soil was covered with a layer of water. The vessel

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UDC: 632.954

- 25 -

ACC NR: AP8037580

was half-filled with granules of clay and I (20 kg I per hectare). In 18 days, 25% inhibition of oat sprouts occurred 0—2 cm below the soil surface, with negligible effect from 4 to 10 cm. Horizontal movement of I in soil can occur only when flow is present. The standard concentrations of I are shown in Fig. 1. The movement of I in reed rhizomes

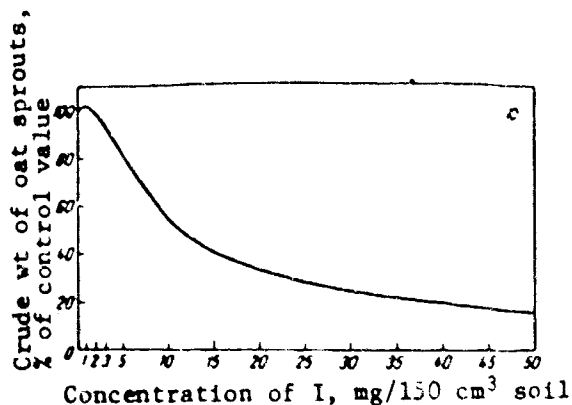


Fig. 1. Standard concentrations of Monuron

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ACC NR: AP8037580

was studied in lysimeters to determine whether I, when absorbed only by roots, can move through rhizomes into the surface mass of the reed at some distance from the place of application. The toxic effect of I began to appear 5 days after application. First affected were the upper and middle leaves: they turned yellow from the tip of the leaf to the base. Later, almost all the leaves turned yellow and shriveled up. Thus, I can move a considerable distance along reed rhizomes which extend for several meters. This causes the destruction of the surface mass of reeds in drainage canals away from the place of application of I and Diuron to the bottom of the canals. The destruction of plants tens of meters downstream from the place of application is basically due to water movement. Orig. art. has: 3 figures and 2 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 02/ SUBM DATE: 29Aug66/ ORIG REF: 004/ OTH REF: 005

Card 3/3

- 26 -

ACC NR: AP8034817

SOURCE CODE: UR/0450/68/002/010/0025/0020

AUTHOR: Berzina, I. A.; Germane, S. K.; Dregeris, Ya. Ya.; Aren, A. K.

ORG: Institute of Organic Synthesis, AN LatSSR, Riga (Institut organicheskogo sinteza AN LatSSR)

TITLE: 2-β-(N-Arylpiperazino) ethylindan-1,3-diones and indan-1, 3-diols

SOURCE: Khimiko-farmatsevticheskiy zhurnal, v. 2, no. 10, 1968, 25-29

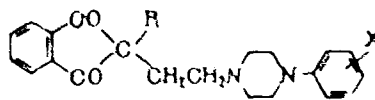
TOPIC TAGS: ketone, aromatic alcohol, hypothermia, narcosis, analgesic drug, tranquilizer, indandione derivative

ABSTRACT: The title compounds were synthesized to study their neurotropic properties. Yellowish crystalline 2-β-(N-arylpiperazino) ethyl-2-phenylindan-1,3-diones (Ia—Ig) and 2-β-(N-arylpiperazino) ethyl-2-methylindan-1,3-diones (Ih and Ii) were synthesized by adding N-arylpiperazine in dioxane to 2-β-hydroxyethyl-2-phenylindan-1,3-dione tosylate or 2-β-hydroxyethyl-2-methylindan-1,3-dione tosylate in dioxane and heating at 100°C for 2 hr. Colorless crystalline IIa—III were similarly

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UDC: 615.21:547.665

ACC NR: AP8034817



Ia—i

R = Me, Ph; X = H, Me, Cl

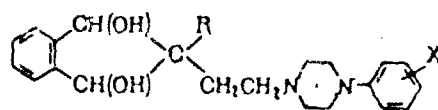
Table 1

Compd.	Mp, °C	Yield	Net formula
Ia	142	78	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub>
Ia 2HCl	218 - 20	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> 2HCl
Ib	126	70	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub>
Ib HCl	258 - 5	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> HCl
Ic	102	58	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub>
Ic HCl	224 - 6	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> HCl
Id	160	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> Cl
Id HCl	160 - 2	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> Cl HCl
Ie	151	72	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> Cl
Ie HCl	234 - 6	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> Cl HCl
If	86	68	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> Cl
If HCl	203 - 5	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> Cl HCl
Ig	114	65	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub>
Ig 2HCl	195 - 7	—	C <sub>21</sub> H <sub>19</sub> O <sub>3</sub> N <sub>2</sub> 2HCl
Ih	148	61	C <sub>22</sub> H <sub>21</sub> O <sub>3</sub> N <sub>2</sub>
Ih 2HCl	215 - 8	—	C <sub>22</sub> H <sub>21</sub> O <sub>3</sub> N <sub>2</sub> 2HCl
Ii	132	53	C <sub>22</sub> H <sub>21</sub> O <sub>3</sub> N <sub>2</sub> Cl
Ii 2HCl	215 - 8	—	C <sub>22</sub> H <sub>21</sub> O <sub>3</sub> N <sub>2</sub> Cl 2HCl

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ACC NR: AP8034817

prepared from the corresponding idan-1,3-diol tosylates. Physiological



IIa-1  
R = Me, Ph; X = H, OMe, Cl

Table 2

Compd.	Mp, °C	% Yield	Net formula
IIa	193	73.2	C <sub>21</sub> H <sub>27</sub> O <sub>3</sub> N <sub>2</sub>
IIa 2HCl	240-2	—	C <sub>21</sub> H <sub>27</sub> O <sub>3</sub> N <sub>2</sub> · 2HCl
IIb	210	75	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub>
IIb 2HCl	214-6	—	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> · 2HCl
IIc	178	71	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub>
IIc 2HCl	197-8	—	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> · 2HCl
IId	205	70	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl
IId HCl	196-9	—	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl · HCl
IIf	226	79	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl
IIf HCl	232-4	—	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl · HCl
IIg	215	72	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl
IIg HCl	210	75	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl · HCl

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ACC NR: AP8034817

Table 2. (Cont.)

IIh	170	78	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub>
IIh HCl	192-4	—	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> · HCl
IIi	158	77	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl
IIi HCl	205-7	—	C <sub>23</sub> H <sub>29</sub> O <sub>3</sub> N <sub>2</sub> Cl · HCl

response data in white mice (ip administration 30 min before the experiment) are shown in Table 3. All the synthesized compounds produce

Table 3

No.	R	X	(In mg/kg)	"Rotating rod" test	"Tube" test	"Attraction" test	Body temp, °C	Analgesic activity	Index of hexamethylenetetrazolipotentiation
				(In mg/kg)					
Ia	C <sub>6</sub> H <sub>5</sub>	p-OCH <sub>3</sub>	1200	140	140	>500	60	350	4.2
Ib	C <sub>6</sub> H <sub>5</sub>	o-OCH <sub>3</sub>	1600	100	300	>800	10	300	2.4
Ic	C <sub>6</sub> H <sub>5</sub>	m-OCH <sub>3</sub>	2000	200	180	>500	20	20	1.9
Id	C <sub>6</sub> H <sub>5</sub>	p-Cl	900	130	120	130	10	10	6.7
Ie	C <sub>6</sub> H <sub>5</sub>	o-Cl	1800	440	210	>500	20	20	2.8
If	C <sub>6</sub> H <sub>5</sub>	m-Cl	510	150	150	>500	10	10	1.5

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ACC NR: AP8034817

Table 3. (Cont.)

Ig	C <sub>6</sub> H <sub>5</sub>	H	(2 671+4 218)	(12+24)	(47+127)	>600	(46+83)	(23+63)	2.0
Ih	CH <sub>3</sub>	•CH <sub>3</sub>	2 600	240	240	>800	370	40	6.5
Ii	CH <sub>3</sub>	•Cl	(1 940+3 424)	(205+281)	(205+281)	>50	(166+543)	(30+53)	4.2
Ila	C <sub>6</sub> H <sub>5</sub>	P-OCH <sub>3</sub>	(932+1 298)	(33+108)	(46+96)	>20	(43+73)	(21+36)	6.5
Ilb	C <sub>6</sub> H <sub>5</sub>	•OCH <sub>3</sub>	2 050	110	100	>20	200	30	5.6
Ilc	C <sub>6</sub> H <sub>5</sub>	•OCH <sub>3</sub>	(1 864+2 255)	(88+136)	(81+124)	>20	(125+320)	(25+36)	5.6
Ild	C <sub>6</sub> H <sub>5</sub>	•Cl	42	11	13	>20	8	—	3.6
Ile	C <sub>6</sub> H <sub>5</sub>	•Cl	(100+49)	(7+18)	(9+18)	>20	(4+16)	—	3.4
Ilf	C <sub>6</sub> H <sub>5</sub>	•Cl	48	37	31	>20	29	17	2.7
Ilg	C <sub>6</sub> H <sub>5</sub>	H	(40+55)	(25+52)	(22+46)	>20	(22+50)	(12+24)	4.2
Iih	CH <sub>3</sub>	•OCH <sub>3</sub>	400	24	25	>20	14	20	4.0
Iii	CH <sub>3</sub>	•Cl	(380+436)	(1.2+3.2)	(4.2+8.1)	>20	(11+18)	(37+56)	3.6
Iiv	C <sub>6</sub> H <sub>5</sub>	•Cl	35	11	14	>20	6	24	3.4
Iiv	C <sub>6</sub> H <sub>5</sub>	•Cl	(30+41)	(8+15)	(7+27)	>50	(4+8)	(20+30)	2.4
Iiv	C <sub>6</sub> H <sub>5</sub>	•Cl	690	42	42	>20	27	56	2.7
Iiv	C <sub>6</sub> H <sub>5</sub>	•Cl	(607+788)	(30+58)	(30+58)	>20	(18+39)	(45+70)	4.0
Iiv	C <sub>6</sub> H <sub>5</sub>	•Cl	250	15	18	>20	18	37	2.4
Iiv	C <sub>6</sub> H <sub>5</sub>	H	(192+325)	(11+19)	(13+25)	>20	(13+25)	(22+61)	2.7
Iiv	C <sub>6</sub> H <sub>5</sub>	H	56	17	17	>20	14	22	4.2
Iiv	CH <sub>3</sub>	•OCH <sub>3</sub>	(45+70)	(12+24)	(12+24)	>20	(11+17)	(18+28)	4.0
Iiv	CH <sub>3</sub>	•Cl	145	24	25	>20	28	27	4.0
Iiv	CH <sub>3</sub>	•Cl	(112+188)	(19+30)	(19+33)	(23+39)	(21+36)	(15+27)	4.0
Iiv	CH <sub>3</sub>	•Cl	7 100	15	15	(11+19)	(13+25)	(75+119)	4.0
Iiv	CH <sub>3</sub>	•Cl	(6 444+9 230)	(11+19)	(11+19)	(11+19)	(13+25)	(75+119)	4.0

hypothermia, disturb motor coordination, potentiate hexenal narcosis, and display analgesic properties characteristic of CNS depressants. The latter two properties are more pronounced in Ia—II than in IIIa—IIIi,

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ACC NR: AP8034817

while tranquilizing properties are more pronounced in IIIa—IIIi. Compound Iic is as active a tranquilizer as phenothiazine and butyrophenol. Orig. art. has: 3 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 05May68/ ORIG REF: 004

Card 6/6

ACC NR: AP8037579

SOURCE CODE: UR/0394/68/006/011/0031/0032

AUTHOR: Bocharova, Z. A.; Ostroukhov, M. A.; Kholodnyuk, M. S.

ORG: Krasnodar NII of Agriculture (Krasnodarskiy NII sel'skogo khozyaystva); VIZR

TITLE: Results of study of the effectiveness of Merkurgeksan

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 11, 1968, 31-32

TOPIC TAGS: wheat, organomercury compound, pesticide, fungicide

ABSTRACT: The effectiveness of Merkurgeksan (proposed by the All-Union Scientific Research Institute of Chemicals for Plant Protection) was studied with respect to hard wheat smut (*Tilletia tritici*), corn wireworms, and corn diseases. Merkurgeksan is a dry mixture containing 1% EtHgCl, 15-20% hexachlorobenzene, and 15-20% of the gamma isomer of 1,2,3,4,5,6-hexachlorocyclohexane (Gammexane). Merkurgeksan (and Granosan) completely eliminated hard wheat smut when the compound was applied to seeds (1.5 kg per 1 ton of seeds). Merkurgeksan has negligible effect on germination. Merkurgeksan (with 5% sulfite-alcohol slops concentrate) is more effective than 50% (Me<sub>2</sub>NCS)<sub>2</sub>S and 20%

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UDC: 632.952

ACC NR: AP8037579

Gammexane in protecting corn shoots from wireworms and pseudowireworms (2-3 kg per 1 ton of seeds). Merkurgeksan slightly improves germination, growth, and yield of corn. Orig. art. has: 3 tables.  
[WA-50; CBE No. 38] [FT]

SUB CODE: 02/ SUBM DATE: 27Apr67

ACC NR: AP8033577

SOURCE CODE: UR/0062/68/000/010/2294/2296

AUTHOR: Brestkin, A. P.; Godavikov, N. N.; Godyna, Ye. I.; Kabachnik, M. I.; Rozengart, Ye. V.

ORG: Institute of Heteroorganic Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR); Institute of Evolutionary Physiology and Biochemistry im. I. M. Sechenov, Academy of Sciences SSSR (Institut evolyutsionnoy fiziologii i biokhimii Akademii nauk SSSR)

TITLE: Anticholinesterase properties of O-ethyl S-( $\omega$ -phenylalkyl) methylthiophosphonates

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1968, 2294-2296

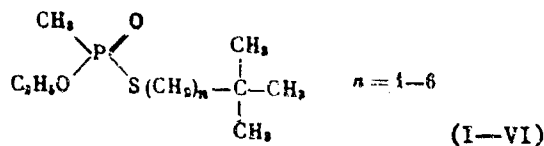
TOPIC TAGS: anticholinesterase, phosphonic acid, aliphatic ester, kinetic chemical reaction rate / thiophosphonate ester

ABSTRACT: It has been shown previously that the anticholinesterase activity (inhibition rate constants  $k_2$ ) of O-ethyl S-alkyl methylthiophosphonates containing tert-Bu at various distances from P (I--VI) changes considerably when the number of methylene groups  $n$  is increased.

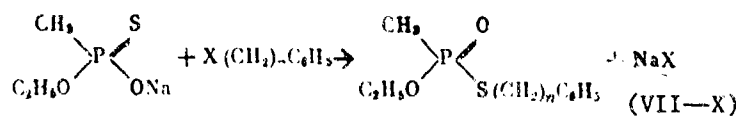
Card 1/5

UDC: 541.69+661.718.1

ACC NR: AP8033577



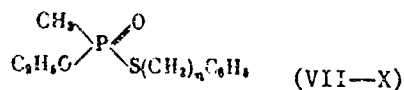
At the same time, the rate constants of non-enzymic hydrolysis and the activation energies of the reaction of these compounds with cholinesterase (ChE) remain constant. It was concluded that the observed change in the rate constants  $k_2$  of the reactions with butyrylcholinesterase (BuChE) is a result of a change in the conditions of sorption of the organophosphorus inhibitor on the active surface of the enzyme due to a change in the "hydrophobic reactions" of the alkyl substituent and hydrophobic segments located in the region of the anionic site of BuChE. It was of interest to explain how the anti-ChE activity of compounds analogous to I--VI, but having a bulky group other than tert-Bu, e.g., Ph, would change. O-Ethyl S- $\omega$ -phenylalkyl methylthiophosphonates (VII--X) were prepared by allowing sodium O-ethyl methylthiophosphonate to react with the corresponding phenylalkyl chlorides or bromides.



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Table 1



n	Bp, °C (p in mm)	$n_D^{20}$	$d_4^{20}$	% Yield
1	135—136 (1,5)	1,5465	1,1521	58
2	136 (2)	1,5398	1,1369	65
3	150—151 (2)	1,5346	1,0808	63
4	137—138 (1)	1,5300	1,1068	73

Horse blood serum ChE (acylhydrolase of acylcholines K.F. 3.1.1.3) was used as the source of BuChE. The rate constants  $k_2$  of BuChE inhibition were determined in a 0.02M phosphate buffer of pH 7.5 at 25°C. These constants were calculated from the pseudomonomolecular reaction formula. The rate constants of alkaline hydrolysis were determined by back-titrating the excess of base with acid. As is evident from Table 2,

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Table 2. Rate constants  $k_2$  of inhibition of BuChE by VII—X and rate constants of alkaline hydrolysis  $k_{\text{hydr}}$ 

n	$k_2 \cdot 10^4$ , 1/(M-min)	$k_{\text{hydr}}$ , 1/(M-min)	n	$k_2 \cdot 10^4$ , 1/(M-min)	$k_{\text{hydr}}$ , 1/(M-min)
1	$12,2 \pm 0,1$	$0,1 \pm 0,01$	3	$8,52 \pm 0,81$	$0,11 \pm 0,02$
2	$1,40 \pm 0,10$	$0,14 \pm 0,01$	4	$11,0 \pm 0,1$	$0,12 \pm 0,02$

$k_{\text{hydr}}$  of VII—X are practically constant. This indicates constancy of the strictly phosphorylating reactivity of the P atom of VII—X. At the same time, the constants  $k_2$  change greatly with an increase in the distance between P and Ph, as is also true of I—VI. However, for

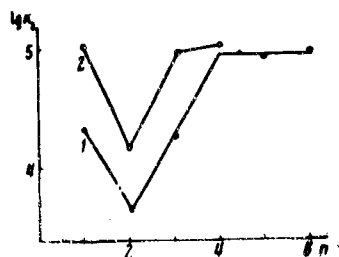


Fig. 1. Relation of the rate constants of inhibition of BuChE by I—X to the nature of R and its distance from the P atom (n):

1 - R = tert-Bu; 2 - R = Ph

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ACC NR: AP8033577

I—VI, the maximum values of  $k_2$  are observed when  $n = 4$  and above. In both cases, the hydrophobic tert-Bu or Ph groups are probably adsorbed on the same hydrophobic segments of the active surface of BuChE. In both series, compounds where  $n = 1$  are characterized as having a distance between the center of the bulky hydrophobic group and the P atom which enables them to fix the adsorbed molecule of the inhibitor on the hydrophobic groups immediately surrounding the anionic group of the enzyme. These hydrophobic groups are adapted to the three Me groups of acetylcholine. When  $n = 4$ , the increase in  $k_2$  in both series is apparently related to the "hydrophobic reaction," i.e., the improvement of the conditions for the formation of the Michaelis complex owing to sorption of the bulky hydrophobic groups on the hydrophobic segment of the enzyme surface beyond the anionic site. There is apparently a discontinuity, i.e., a hydrophilic segment, of the surface (e.g., of the CO—NH group of the polypeptide chain) between the immediate surroundings of the anionic site and the hydrophobic segment beyond the anionic site. When  $n = 2$ , the hydrophobic radical of the inhibitor must impinge upon this hydrophilic discontinuity during the formation of an enzyme-substrate complex. Hence, the sharp decrease in  $k_2$ . The difference in the values of  $k_2$  for compounds having tert-Bu and Ph groups and identical values of  $n$  is probably the result of differences in the size and spatial configuration of these groups. Orig. art. has: 2 tables and 1 figure.

[WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 12Feb68/ ORIG REF: 005

Card 5/5

ACC NR: AP8037875

SOURCE CODE: UR/0409/68/000/005/0953/0953

AUTHOR: Bystrova, R. M.; Yutilov, Yu. M.

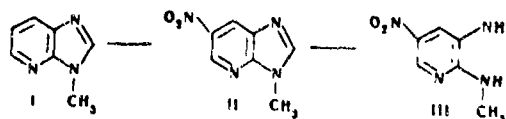
ORG: Donetsk Branch IREA (Donetskiy filial IREA)

TITLE: Nitration of 3-methyl-(3H)-imidazo[4,5-b]pyridine

SOURCE: Khimiya geterotsiklicheskiy sovedineniy, no. 5, 1968, 953

TOPIC TAGS: organic imine compound, organic nitro compound, pyridine, pyridine derivative, nitration

ABSTRACT: 3-Methyl-(3H)-imidazo[4,5-b]pyridine was nitrated with a mixture of  $\text{HNO}_3$  and  $\text{H}_2\text{SO}_4$  at 140—160°C to form (50%) compound II,



mp 220—221°C. It is identical with the product formed in the reaction of formic acid with compound III. [WA-50; CBE No. 38] [PS]

SUB CODE: 07/ SUBM DATE: 08Jan68/ ORIG: 001/ OTH REF: 001

Card 1/1

UDC: 547.785.5+547.822.7+542.958.1

ACC NR: AP8036359

SOURCE CODE: UR/0031/68/000/010/0057/0059

AUTHOR: Davidovskiy, L. Ya.; Khozhamratova, L. Sh.; Nemolcheva, G. V.

ORG: none

TITLE: Membrane permeability and cholinergic heart regulation

SOURCE: AN KazSSR. Vestnik, no. 10, 1968, 57-59

TOPIC TAGS: acetylcholine, heart, drug dosage response, cell membrane

ABSTRACT: It is known that cholinergic effects develop when acetylcholine (AcCh) comes in contact with choline-receptive cell systems. A choline-receptor is considered to be a specific protein. It has been shown that there is a certain distance between the nerve cholinergic ending which liberates AcCh and the receptor which receives it. Indirect literature data indicate that hindrance or, conversely, facilitation of AcCh contact with choline-receptive cell structures may affect the ultimate effect of parasympathetic action. However, there is no experimental verification of this assumption in the available literature. In the present study, an attempt has been made to explain how the cholinergic effects change during artificial facilitation of AcCh transport on the nerve-ending-choline-receptor segment (increase in membrane permeability).

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UDC: 612.18.5.

ACC NR: AP8036359

For this purpose, lidase was employed. Lidase is a hyaluronidase compound which depolymerizes the hyaluronic acid of the basic material of connective tissue and thus increases the permeability of intercellular membranes. Lidase was administered to rabbits intramuscularly in 16-32 units daily for 6-10 days. In the first series of experiments, an increase was observed in the tissue permeability of rabbits which had received lidase; 20 hearts, isolated according to Langendorf, were studied, and the indicator was a 0.1% solution of neutral red administered into the perfusion stream. After perfusion of the dye (2 to 3 min), the heart was dried and homogenized. The dye which remained in the tissues was extracted with a physiological solution. The amount of dye in the extract was determined with a SF-4-A spectrophotometer on the basis of 1 g crude weight of heart. The data obtained are shown in Fig. 1. In Fig. 1, it is evident that the administration of lidase to rabbits in 16 units per day for 6 days resulted in an increase in the permeability of the heart tissues and a much greater retention of the dye in the intracellular structures. Thus, while 1 g of heart tissue fixed, on the average, 0.548 mg of dye; after the injection of lidase, it fixed 0.928 mg. It was further studied whether the transport of AcCh to choline-receptive heart cell structures is facilitated under these conditions. A rabbit heart, isolated according to Langendorf, was treated with various concentrations of AcCh (from 0.001 to  $1 \times 10^{-10}$ ). The heart

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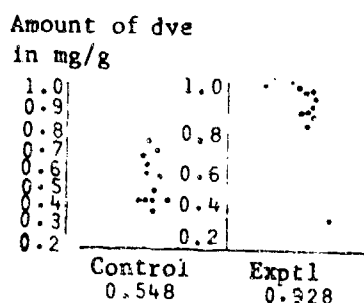


Fig. 1. Accumulation of dye in heart tissues of control and experimental animals, mg/g

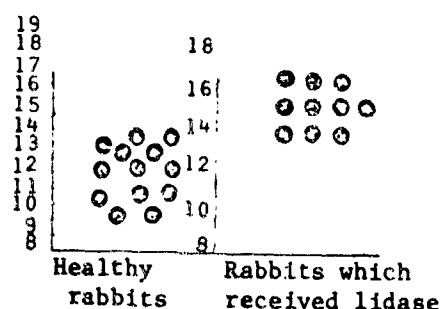


Fig. 2. Threshold concentrations of AcCh which produce a chronotropic effect on an isolated heart

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contraction was recorded on a smoked kymograph ribbon and the threshold concentration was determined of AcCh still capable of producing a negative chronotropic effect. These experiments were performed in the hearts of 13 healthy rabbits and 10 rabbits which had received lidase. The results of this series of experiments are shown in Fig. 2. It was shown that disintegration of the connective-tissue membranes with lidase facilitates the access of the administered AcCh to the choline receptors of the coronary sinus: in the rabbits which received injections of lidase, the threshold concentration of AcCh was noticeably low. In the next series of experiments, the effects of intravenous administration of AcCh on the whole animal were determined for the norm and after injections of lidase. The data were recorded on an EKPS-4 electrocardiograph with a CR<sub>2</sub> shunt without narcosis. Twenty minutes before the experiment, eserine was administered intramuscularly (0.3 mg/kg) to inhibit cholinesterase and endure the preservation of the administered AcCh. The development was noted of a negative chronotropic reaction to doses of AcCh of 0.1 mg/kg and 1 mg/kg with respect to the average durations of RR during each second of the experiment. The result was expressed in per cents of the initial duration, taken as 100%. In this series, 14 rabbits were studied, on which 42 experiments were performed. The rabbits each received 16 units of lidase for 9 days. A much earlier and stronger bradycardic reaction to AcCh was observed (see Fig. 3). Thus, maximum

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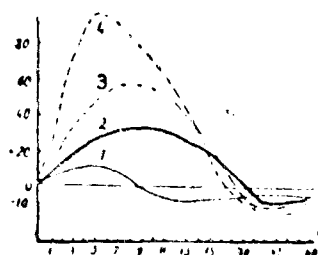


Fig. 3. Bradycardic reaction of animals to AcCh. Abscissa--time, sec.; ordinate--increase in duration of RR

bradycardia (corresponding to more than 30% of the increase in duration of RR) for a dose of AcCh of  $1 \mu\text{g}/\text{kg}$  set in very early, by the 5th second; while in healthy rabbits, maximum bradycardia developed only by the 9th or 10th second of the experiment. When  $0.1 \mu\text{g}/\text{kg}$  was administered, just as sharp a rise of the curve was observed, with early attainment of the maximum. For this dosage, bradycardia was somewhat less and reached 65%, which, however, also somewhat exceeds the corresponding reactions of the healthy rabbits. In the final series, the negative chronotropic heart reactions of the whole rabbit to stimulation of the vagus (i.e., to AcCh

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ACC NR: AP8036359

liberated by the nerve endings and not administered from without) were studied. The experiment was conducted under urethan intraperitoneal narcosis ( $1 \text{ g}/\text{kg}$ ), which, as is known, does not affect vegetative functions. The right vagus nerve was exposed on the neck, it was severed between the ligaments, and the peripheral segment was placed on Ag electrodes, enclosed in an organic glass casing. Square-wave pulses were fed to the nerve from an EI-1 pulse generator with a duration of 0.2 msec. The frequencies were varied from 0.75 to 1000 hz, since within this range the pulse frequencies are directly proportional to the amount of liberated AcCh. The result was recorded on an EKG as in the preceding series. For 10 days, lidase was administered to 6 rabbits (16 units each) and 3 rabbits (32 units each). The results are shown as curves 1 and 2 in Fig. 4.

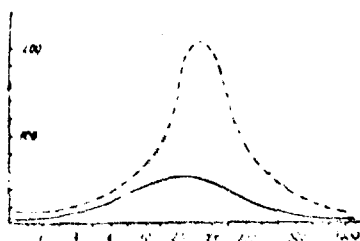


Fig. 4. Results of administration of lidase to animals. Abscissa--frequency of stimulating current impulses, hz; ordinate--increase in duration of RR, %

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ACC NR: AP8036359

The maximum decreases appear at frequencies of 25—50—75 hz. When 16 units of lidase were administered, the greatest decrease was 53% of the initial duration of RR, but when the dosage was doubled, it reached 192.8%. This result confirms the assumption that lidase makes it easier for the AcCh, which is liberated by the nerve endings of the vagus in the heart itself, to come into contact with the choline-receptor. Morphological investigations were performed of the hearts of rabbits which received injections of lidase (performed by V. S. Muzykantova). Employed were fixations in neutral formalin, sealing with paraffin, staining (according to Selier) with toluidine blue at pH 5, 6; hematoxylin-eosine (according to van H. son, Homory, and Weigert); and the PAS-reaction. The administration of lidase did not produce any morphological changes in the heart tissues. The increase in the tissue permeability may play a part in increasing the parasympathetic reactions of the heart in certain pathological conditions. Orig. art. has: 4 figures.

[WA-50; CBE No. 38] [FT]

SUB CODE: 06/ SUBM DATE: none

Card 7/7

ACC NR: AP8035703

SOURCE CODE: UR/0394/68/006/010/0039/0041

AUTHOR: Dmitriyeva, L. G. (Member of Uladovo-Lyulinetsk experimental selection station); Khodakovskiy, P. P. (Member of Uladovo-Lyulinetsk experimental selection station); Yevtushenko, L. S. (Member of Uladovo-Lyulinetsk experimental selection station)

ORG: Uladovo-Lyulinets Experimental Breeding Station (Uladovo-Lyulinetskaya opytno-selekttsionnaya stantsiya)

TITLE: Effectiveness of herbicides on plots of sugar beet depending on the method of their application

SOURCE: *Knizhny v sel'skom khozyaystve*, v. 6, no. 10, 1968, 39-41

TOPIC TAGS: urea compound, weed killer, soil type

ABSTRACT: The effectiveness of dichloralurea (DKhM) (5—15 kg/ha), Dalapon (4—6 kg/ha), Alipur (3—7 kg/ha), Eptam (2—6 kg/ha), Pyramine (4—6 kg/ha), and Tillam (2—6 kg/ha) in killing bristly foxtail grass (*Setaria*), barnyard millet (*Echinochloa crus-galli*), goosefoot (*Chenopodium*), knotgrass (*Polygonum*), couch grass (*Agropyron repens*), and Canada thistle (*Cirsium arvense*) was studied over a six-year period on rich, leached (pH 6.4) black earth with 4.25—3.80% humus (91—95%

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UDC: 632.954  
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saturation with bases). The greatest destruction of the weeds from DKhM occurred in the wet years: 38--45% in 1962 and 58--67% in 1966, and the least occurred in the dry ones: 11--26% in 1963. On the average, DKhM reduced weed infestation before trimming by 33% when applied before sowing, and it reduced infestation before cultivating by 52%. DKhM

Table 1. Effect of Eptam, Tillam, and Pyramine on weed infestation

Variant	Amount of weeds, no./m <sup>2</sup> (in parentheses—% destruction)			
	1965		1966	
	Before cultivation	Before harvest	Before cultivation	Before harvest
Two-fold hand weeding				
Control				
Tillam, kg/ha	176	21	20	4
2	169(4)	12(43)	14(30)	5
4	213	11(48)	10(50)	9
6	223	8(62)	10(50)	6
Control	188	12	20	4
Eptam, kg/ha				
2	111(41)	12	6(76)	6
4	93(51)	17	10(50)	6
6	81(57)	9(25)	6(70)	8

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Table 1. (Cont.)

Control	313	5	21	6
Pyramine, kg/ha				
4	146(54)	4(20)	14(33)	5(17)
6	130(59)	5	11(48)	5(17)
P%				
Without weeding				
Control	171	65	21	6
Tillam, kg/ha				
2	187	48(26)	21(24)	5(17)
4	149(13)	40(38)	16(48)	7
6	196	80(23)	11(48)	6
Control	183	65	21	6
Eptam, kg/ha				
2	110(30)	54(17)	9(57)	6
4	107(41)	37(43)	7(67)	5(17)
6	85(54)	46(29)	7(67)	6
Control	188	111	19	8
Pyramine, kg/ha				
4	125(32)	114	12(37)	5(38)
6	111(30)	64(11)	17(11)	4(50)
P%				

reduced infestation by 21% and 32%, respectively, when applied before germination. The best results with Dalapon (30% destruction) and Alipur (45% destruction) were also obtained when they were applied before sowing. Dalapon is ineffective against broad-leaved dicotyledonous weeds (e.g.,

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ACC NR: AP8035703

*Chenopodia* and *Polygona*). Eptam and Pyramine (6 kg/ha) destroyed a greater amount of *Setaria* and *Echinochloa* when applied before sowing. Orig. art. has: 5 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 25Mar67

Cord 4/4

ACC NR: AP8035540

SOURCE CODE: UR/0079/68/038/010/2289/2292

AUTHOR: Gavrilov, V. I.; Chernokal'skiy, B. D.; Kanay, G. Kh.

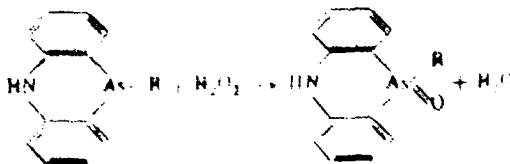
ORG: Kazan' Chemical Technology Institute im. S. M. Kirov (Kazanskiy khimiko-tehnologicheskii institut)

TITLE: Some dihydrophenarsazine derivatives with a pentavalent arsenic atom

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2289-2292

TOPIC TAGS: organic arsenic compound, organic oxide, halogenated organic compound

ABSTRACT: Colorless, crystalline, alcohol-soluble 10-alkyl(aryl)-5,10-dihydrophenarsazine oxides (I-XIII) were synthesized by adding excess 20%  $H_2O_2$  to 10-alkyl(aryl)-5,10-dihydrophenarsazines in acetone at 0°C

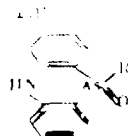


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UDC: 542.945+542.957.2+547.852.7



ACC NR: AP8035540



No.	R	% Yield	Mp, °C
I	CH <sub>3</sub>	85.5	281-282
II	C <sub>2</sub> H <sub>5</sub>	80.4	246-247
III	(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	85.3	308-310
IV	(CH <sub>2</sub> ) <sub>5</sub> C	91.8	347-352
V	CH <sub>3</sub> -CH=CH <sub>2</sub>	75.8	175-178
VI	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	73.4	131-132
VII	CH <sub>3</sub> OCH <sub>2</sub>	88.7	300
VIII	C <sub>6</sub> H <sub>5</sub>	90.4	338-339
IX	p-CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub>	88.6	309-312
X	p-CH <sub>3</sub> OC <sub>6</sub> H <sub>4</sub>	90.8	268-270
XI	p-(CH <sub>3</sub> ) <sub>2</sub> C <sub>6</sub> H <sub>3</sub>	91.7	310-311
XII	p-ClC <sub>6</sub> H <sub>4</sub>	87.1	309-311
XIII	p-CH <sub>3</sub> OOC <sub>6</sub> H <sub>4</sub>	91.3	290-291

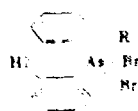
for 1 hr. Yellow, crystalline, alcohol-soluble 10-alkyl(aryl)-5,10-dihydrophenarsazine dibromides (XIV—XVI) were synthesized by adding

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ACC NR: AP8035540

Br in CCl<sub>4</sub> to 10-alkyl(aryl)-5,10-dihydrophenarsazine in CCl<sub>4</sub> at -10

Table 2



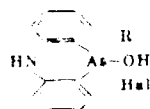
No.	R	% Yield	Mp, °C
XIV	CH <sub>3</sub>	93.2	118-119
XV	(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	90.1	81-82
XVI	p-CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub>	92.8	187-188

to 0°C. Colorless crystalline 10-alkyl(aryl)-5,10-dihydrophenarsazine hydroxide halides (XVII—XIX) were synthesized by adding HCl or 40% HBr

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ACC NR: AP8035540

Table 3



No.	R		% Yield	Mp, °C
XVII	(CH <sub>3</sub> ) <sub>2</sub> CH	Cl	85.7	195—196°
XVI	(CH <sub>3</sub> ) <sub>2</sub> CH	Br	84.7	198—199
XIX	p-CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub>	Cl	85.9	254—257

to XV—XVI in EtOH  $\rightarrow$  boiling for 10 min. Orig. art. has: 3 tables.  
[WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 05Mar68/ OTH REF: 002

Card 4/4

ACC NR: AP8034740

SOURCE CODE: GE/9007/68/038/03-/0150/0161

AUTHOR: Gehlen, H.; Segeletz, H.

ORG: Chemical Institute, Pedagogical Hochschule, Potsdam (Chemisches Institut der Pädagogischen Hochschule)

TITLE: 2-Amino-1,3,4-oxadiazoles. XXIII. Preparation and reactions of 2-amino-1,3,4-oxadiazoles from aromatic dihydroxy- and di- and trialkoxy-carboxylic acid hydrazides and the reaction of phenyl isocyanate with 2-imino-3-alkyl-5-aryl-1,3,4-oxadiazolines

SOURCE: Journal für praktische Chemie, v. 38, no. 3-4, 1968, 150-161

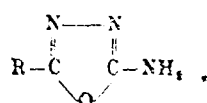
TOPIC TAGS: organic azole compound, urea compound, guanidine, biologically active compound

ABSTRACT: The title compounds were synthesized to study their pharmacological action. Colorless crystalline 2-amino-1,3,4-oxadiazoles (I—XII) were prepared by adding KHCO<sub>3</sub> and CNBr to the corresponding carboxylic acid hydrazides (1:1:1 molar ratio) in cold MeOH. 2-Acetamido-1,3,4-oxadiazoles (XIII, XV, XVII, XIX, XXI, XXIII, XXV, XXVIII, XXX, and XXXII) were synthesized by refluxing I, III—VIII, and X—XII, respectively, for 10 min in Ac<sub>2</sub>O or by adding Ac<sub>2</sub>O to I, III—VIII, and X—XII

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Table 1



Nr.	R	% Yield	Mp, °C (Solvent)*
I	2,4-(OH) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	69	266 decomp (A/W)
II	2,5-(OH) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	92	270 decomp (A)
III	3,4-(OH) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	60	241-242 (W)
IV	3,5-(OH) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	87	295-296 decomp (W)
V	2-OH-4-CH <sub>3</sub> O-C <sub>6</sub> H <sub>3</sub>	77	198-198.5 (A)
VI	3-CH <sub>3</sub> O-4-OH-C <sub>6</sub> H <sub>3</sub>	81	251-252 (Py)
VII	2,4-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	80	176-177 (A)
VIII	1,3,5-(H <sub>2</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	92	235-236

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Table 1. (Cont.)

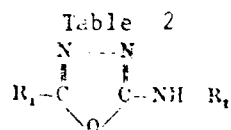
IX	3,5-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	91	185-185.5 (E)
X	3,4,5-(CH <sub>3</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	82	216.5-217 (E)
XI	3,4,5-(C <sub>2</sub> H <sub>5</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	86	176-178 (A)
XII	$  \begin{array}{c}  \text{O} \\  \diagup \quad \diagdown \\  \text{CH}_2 \text{---} \text{C}_6\text{H}_3 \\  \diagdown \quad \diagup \\  \text{O}  \end{array}  $	93	267 decomp (Py)

\*Where A = EtOH, B = HPh, E = HOAc, Py = pyridine, W = H<sub>2</sub>O

in pyridine. 2-Benzamido-1,3,4-oxadiazoles (XIV), XVI, XVIII, XX, XXII, XXIV, XXVI, XXVII, XXIX, XXXI, and XXXIII) were synthesized by adding BzCl to I and III-XII, respectively, in warm pyridine. 3-Alkoxy-5-(3,4-dimethoxyphenyl)-1,2,4-triazoles (XXXIV-XXXVII) were obtained by refluxing VIII, KOH, and the corresponding alcohols for 5 hr. Compound XXXVIII was similarly prepared from X, KOH, and MeOH. Compound XXXIX was obtained by refluxing IX with 12% KOH for 1 hr. 2-Imino-3-alkyl-5-aryl-1,3,4-oxadiazolines (XL, XLI, and XLIII-XLV) were synthesized by heating VII-X and XII, respectively, and Me<sub>2</sub>SO<sub>4</sub> to 160°C for 10-15 min.

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ACC NR: AP8034740



Nr.	R <sub>1</sub>	R <sub>2</sub>	% Yield	Mp, °C (Solvent)*
XIII	2,4-(O-CH <sub>3</sub> -CO) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	88	255-237 (A)
XIV	2,4-(O-C <sub>6</sub> H <sub>5</sub> -CO) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	77	215-220 (A)
XV	3,4-(O-CH <sub>3</sub> -CO) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	52	226-229 (A)
XVI	3,4-(O-C <sub>6</sub> H <sub>5</sub> -CO) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	52	217-220 (Py)
XVII	3,5-(O-CH <sub>3</sub> -CO) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	82	242-244 (A)
XVII B	3,5-(O-C <sub>6</sub> H <sub>5</sub> -CO) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	83	255-256 (Py)
XIX	2-(O-CH <sub>3</sub> -CO)-4-CH <sub>3</sub> O-C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	86	223-224 (A)
XX	2-(O-C <sub>6</sub> H <sub>5</sub> -CO)-4-CH <sub>3</sub> O-C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	64	186-187 (A)
XXI	3-CH <sub>3</sub> O-4-(O-CH <sub>3</sub> -CO)-C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	91	222-224 (A)
XXII	3-CH <sub>3</sub> O-4-(O-C <sub>6</sub> H <sub>5</sub> -CO)-C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	25	236-237,5 (A)

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ACC NR: AP8034740

Table 2. (Cont.)

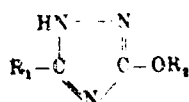
XXIII	2,4-(CH <sub>3</sub> ) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	93	167-188 (A)
XXIV	2,4-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	92	204-205 (A)
XXV	3,4-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	26	215-216 (A)
XXVI	3,4-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	60	208-209 (A)
XXVII	3,5-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	50	234-234,5 (E)
XXVIII	3,4,5-(CH <sub>3</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	25	223-224 (A)
XXIX	3,4,5-(CH <sub>3</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	71	231-233 (Py)
XXX	3,4,5-(C <sub>2</sub> H <sub>5</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub> -CO	88	202-203 (A)
XXXI	3,4,5-(C <sub>2</sub> H <sub>5</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub> -CO	78	154-156 (A)
XXXII	$  \begin{array}{c}  \text{O} \\  \diagup \quad \diagdown \\  \text{CH}_2 \quad \text{C}_6\text{H}_5 \\  \diagdown \quad \diagup \\  \text{O}  \end{array}  $	CH <sub>3</sub> -CO	36	251 (Py)
XXXIII	$  \begin{array}{c}  \text{O} \\  \diagup \quad \diagdown \\  \text{CH}_2 \quad \text{C}_6\text{H}_5 \\  \diagdown \quad \diagup \\  \text{O}  \end{array}  $	C <sub>6</sub> H <sub>5</sub> -CO	60	252-253 (Py)

\*Where A = EtOH, B = BPh, E = HOAc, Py = pyridine, W = H<sub>2</sub>O

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ACC NR: AP8034740

Table 3



Nr.	R <sub>1</sub>	R <sub>2</sub>	% Yield	mp, °C (Solvent) *
XXXIV	3,4-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub>	20	192-193 (W)
XXXV	3,4-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>2</sub> H <sub>5</sub>	45	136-137 (A/W)
XXXVI	3,4-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>2</sub> H <sub>5</sub>	68	110-111 (A/W)
XXXVII	3,4-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>2</sub> H <sub>5</sub>	80	131-132 (A/W)
XXXVIII	3,4,5-(CH <sub>2</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>2</sub>	CH <sub>3</sub>	24	197-197.5 (A)
XXXIX	3,5-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	H	12	278-280 (A/W)

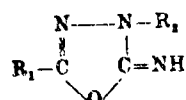
\*Where A = EtOH, B = HPh, E = HOAc, Py = pyridine, W = H<sub>2</sub>O

Dimeric XLII was obtained by heating XLI with excess Me SO in an open flame. N-(5-Aryl-1,3,4-oxadiazol-2-yl)-N'-phenylureas (XLVI-XLIX) were

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ACC NR: AP8034740

Table 4



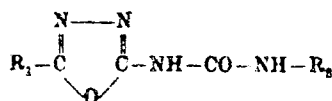
Nr.	R <sub>1</sub>	R <sub>2</sub>	% Yield	mp, °C (Solvent) *
XL	2,4-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub>	44	95-98 (A/W)
XLI	3,4-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub>	85	106-108.5 (A/W)
XLII	3,4-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub>	54	182 (A/W)
XLIII	3,5-(CH <sub>2</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	CH <sub>3</sub>	85	117-120 (A)
XLIV	3,4,5-(CH <sub>2</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>2</sub>	CH <sub>3</sub>	80	117-120 (B)
XLV	$\text{CH}_2 \begin{array}{c} \diagup \text{O} \diagdown \\ \diagdown \text{O} \diagup \end{array} \text{C}_6\text{H}_3$	CH <sub>3</sub>	87	146-148 (A)

\*Where A = EtOH, B = HPh, E = HOAc, Py = pyridine, W = H<sub>2</sub>O

synthesized by allowing PhNCO to react with IX, VIII, X, and XI, respectively, in EtOAc solution or pyridine. N-(3-Alkyl-5-aryl-1,3,4-oxadiazolin-2-yl-idene)-N'-phenylureas (L-LIII) were similarly

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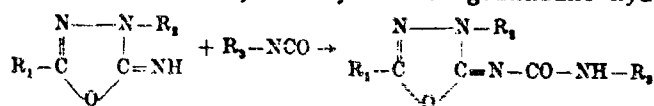
Table 5



Nr.	R <sub>1</sub>	R <sub>2</sub>	% Yield	Mp, °C (Solvent) *
XLVI	3,5-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	26	193-197 (A)
XLVII	3,4-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	60	206-209 (A)
XLVIII	3,4,5-(CH <sub>3</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>2</sub>	C <sub>6</sub> H <sub>5</sub>	83	213-217 (A)
XLIX	3,4,5-(C <sub>2</sub> H <sub>5</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>2</sub>	C <sub>6</sub> H <sub>5</sub>	56	196-198 (A)

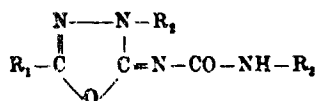
\*Where A = EtOH, B = HPh, E = HOAc, Py = pyridine, W = H<sub>2</sub>O

synthesized from PhNCO and with the corresponding 2-imino-3-methyl-5-aryl-1,3,4-oxadiazolines. 1,5-Diacetyldiaminoguanidine hydrochlorides



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Table 6



Nr.	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	% Yield	Mp, °C (Solvent) *
L	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	56	164-165 (A)
LI	p-NO <sub>2</sub> -C <sub>6</sub> H <sub>4</sub>	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	68	206-208 (A)
LII	p-Cl-C <sub>6</sub> H <sub>4</sub>	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	41	162-162 (A)
LIII	CH <sub>3</sub> $\begin{array}{c} \diagup \quad \diagdown \\ \text{O} \quad \text{O} \end{array}$ C <sub>6</sub> H <sub>4</sub>	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	40	175-179 (A)

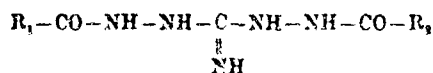
\*Where A = EtOH, B = HPh, E = HOAc, Py = pyridine, W = H<sub>2</sub>O

(LIV, LVI, LVIII, LIX, LX, LXII, LXIV, LXVI, LXVIII, and LXX) were obtained by refluxing I and IV--XII with the corresponding carboxylic acid hydrazides and HCl (1:1:1 molar ratio) in 50% EtOH for 4.5 hr. Compounds LV, LVII, LXI, LXIII, LXV, LXVII, LXIX, and LXXI were obtained

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ACC NR: AP8034740

Table 7




Nr.	R <sub>1</sub>	R <sub>2</sub>	% Yield	Mp, °C (Solvent)*
LIV	C <sub>6</sub> H <sub>5</sub>	2,4-(OH) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	81	240-242
LV			92	196
LVI	C <sub>6</sub> H <sub>5</sub>	3,5-(OH) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	71	224-226
LVII			87	219-219,5
LVIII	C <sub>6</sub> H <sub>5</sub>	2-OH-4-CH <sub>3</sub> O-C <sub>6</sub> H <sub>3</sub>	65	245-246
LIX	C <sub>6</sub> H <sub>5</sub>	3-CH <sub>3</sub> O-4-OH-C <sub>6</sub> H <sub>3</sub>	60	220-221
LX	C <sub>6</sub> H <sub>5</sub>	2,4-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	68	243-245
LXI			91	185-186
LXII	C <sub>6</sub> H <sub>5</sub>	3,4-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	74	224-226

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ACC NR: AP8034740

Table 7. (Cont.)

LXIII			95	187-188
LXIV	C <sub>6</sub> H <sub>5</sub>	3,5-(CH <sub>3</sub> O) <sub>2</sub> -C <sub>6</sub> H <sub>3</sub>	72	221-222
LXV			93	185-186
LXVI	C <sub>6</sub> H <sub>5</sub>	3,4,5-(CH <sub>3</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	70	235-237
LXVII			98	177-179
LXVIII	C <sub>6</sub> H <sub>5</sub>	3,4,5-(C <sub>6</sub> H <sub>5</sub> O) <sub>3</sub> -C <sub>6</sub> H <sub>3</sub>	83	222-224
LXIX			93	175-176
LXX	C <sub>6</sub> H <sub>5</sub>		76	229-231
LXXI			96	192

by crushing LIV, LVI, LX, LXII, LXIV, LXVI, LXVIII, and LXX, respectively, with a small amount of EtOH, H<sub>2</sub>O, and NH<sub>4</sub>OH. Orig. art. has: 7 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 20Nov67/ ORIG REF: 014/ OTH REF: 005

Card 11/11

ACC NR: AP8035700

SOURCE CODE: UR/0394/68/006/010/0031/0032

AUTHOR: Golubeva, Z. Z.

ORG: VNII of Chemicals for Plant Protection (VNII khimicheskikh sredstv zashchity rasteniy)

TITLE: Insecticidal activity of the oxygen analog of Methylnitrophos

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 10, 1968, 31-32

TOPIC TAGS: organic phosphorus insecticide, cholinesterase, phosphate ester

ABSTRACT: The oxygen analog of the insecticide Methylnitrophos, Sumioxon ( $bp_{0.45}$  171—173°C,  $n_D^{20}$  1.5205,  $d_4^{20}$  1.3394) ( $LC_{50}$  for the weevil *Callosobruchus chinensis* L. = 0.01%), which is a mixture (2:1) of dimethyl 3-methyl-4-nitrophenyl phosphate and dimethyl 3-methyl-6-nitrophenyl phosphate, was synthesized to study its toxicity for warm-blooded animals. These data are shown in Table 1. The degree of inhibition of cholinesterase and aliesterase was determined by the colorimetric method based on the Khestrin principle. The cholinesterase was obtained from the heads of houseflies, and the aliesterase was obtained from their

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UDC: 632.951

ACC NR: AP8035700

Table 1

Animals	LD <sub>50</sub> , mg/kg			
	Sumi-thion	Sumi-oxon	Methylpara-thion	Methylpara-oxon
White rats	200/33	24/3.3	25.5/4.1	4.5/0.5
Guinea pigs	1850/112	221/32	417/50	83/2.2
Mice	870/220	90/20	17/13	10.8/—

bodies (without head). Values of  $I_{50}$ , M are shown in Table 2. Values

Table 2

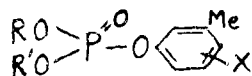
	Cholines-terase	Alies-terase
Methylnitrophos (Sample from experimental batch)	$8.3 \cdot 10^{-7}$	$2.4 \cdot 10^{-5}$
Oxygen analog of Methylnitrophos	$1.5 \cdot 10^{-5}$	$2.7 \cdot 10^{-6}$
Sumithion (from Japan)	$1.7 \cdot 10^{-5}$	$2.3 \cdot 10^{-6}$

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ACC NR: AP8035700

Table 3



R	R'	X	LC <sub>50</sub> , %	Relative toxicity
Me	Me	4-NO <sub>2</sub>	0.0019	84
Me	Me	6-NO <sub>2</sub>	0.05	1
Et	Et	4-NO <sub>2</sub>	0.0082	20
Et	Et	6-NO <sub>2</sub>	0.4	1
Pr	Pr	4-NO <sub>2</sub>	0.12	1
Pr	Pr	6-NO <sub>2</sub>	0.4	1
Bu	Bu	4-NO <sub>2</sub>	0.4	1
Bu	Bu	6-NO <sub>2</sub>	0.4	1

Note. LC<sub>50</sub> of Methylnitrophos is taken as 100%.

of the contact toxicity of the oxygen analogs of Methylnitrophos (aqueous emulsion) for rice weevils (48 hr after spraying) are shown in Table 3. Orig. art. has: 2 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 11May67/ ORIG REF: 002/ OTH REF:

Card 3/3

ACC NR: AP8037847

SOURCE CODE: UR/0409/68/000/005/0808/0611

AUTHOR: Gorelik, M. V.; Lantsman, S. B.; Kononova, T. P.

ORG: Scientific Research Institute of Organic Intermediates and Dyes, Moscow (Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley)

TITLE: Investigation of quinones. IX. Chlorination of anthraquinonoxathia-, and -selenadiazoles

SOURCE: Khimiya geterotsiklicheskikh soyedineniy, no. 5, 1968, 808-811

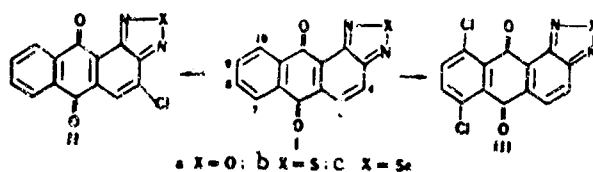
TOPIC TAGS: organic azole compound, quinone, chlorinated aromatic compound, heterocyclic oxygen compound, heterocyclic sulfur compound, selenium compound

ABSTRACT: The title reaction was performed to study the behavior of anthraquinonediazoles under electrophilic-substitution reaction conditions. 4-Chloroanthra[1,2-c][1,2,5]oxadiazole-6,11-dione (IIa) (81% yield, mp 246.5--247°C) was prepared by adding Fe filings or FeCl<sub>3</sub> to Ia in boiling HOAc and treating with Cl<sub>2</sub> for 8 hr. Compounds IIb (mp 284--285°C) and IIc (mp 3--347°C) (60--65% yield) were similarly prepared. 7,10-Dichloroanthra[1,2-c][1,2,5]-oxadiazole-6,11-dione

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UDC: 547.673'547.194.3

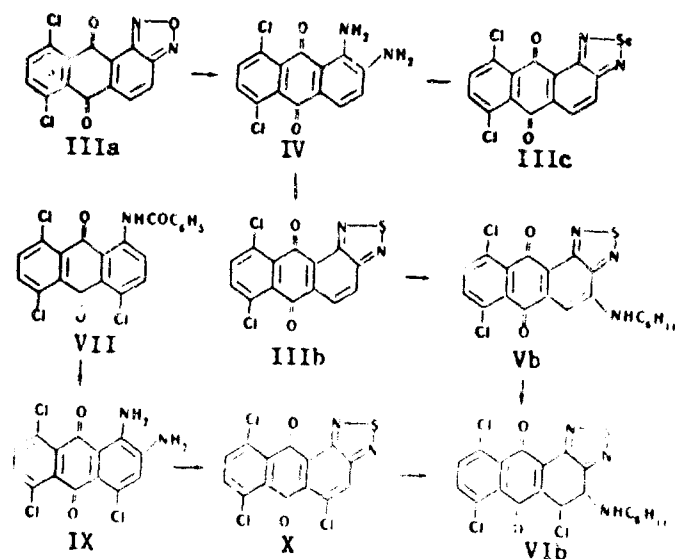
ACC NR: AP8037847



(IIIa) (mp 250.5—251°C) was obtained by passing  $\text{Cl}_2$  into a solution of Ia and iodine in 3% fuming  $\text{H}_2\text{SO}_4$  at 40°C for 3—4 hr. Compounds IIIb (mp 299—300°C) and IIIc (mp 327—328°C, decomposes) (83—87% yield) were similarly prepared. 5,8-Dichloro-1,2-diaminoanthraquinone (IV) (mp 275°C) was obtained by boiling a mixture of IIIc, dioxane,  $\text{H}_2\text{O}$ , and 40% NaOH for 2 hr and was also prepared by stirring aqueous  $\text{NaHSO}_3$  in a solution of IIIa in 4% NaOH for 20 min at 50°C. Yellow IIIb (64% yield) was

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ACC NR: AP8037847



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alternatively prepared by heating IV in  $\text{SOCl}_2$  in dioxane. Red 7,10-dichloro-4-cyclohexylaminoanthra-[1,2-c] [1,2,5]oxadiazole-6,11-dione (Va) (mp 232.5—233°C) was obtained by adding cyclohexylamine to IIIa in  $\text{HCONMe}_2$  at 20°C and pouring the solution into HCl after 15 hr. Compound Vb (mp 270—271°C) (75—83% yield) was similarly prepared. Red acicular VIa (mp 230—230.5°C) and VIb (mp 222—223°C) were obtained by treating Va and Vb with  $\text{SO}_2\text{Cl}_2$  in  $\text{CHCl}_3$  and were also prepared from X (see below) and cyclohexylamine. Orange-red 2-nitro-4,5,8-trichloro-1-aminoanthraquinone (VIII) (78% yield, mp 317—318°C) was prepared by stirring 4,5,8-trichloro-1-benzoylaminoanthraquinone (VII) in 96%  $\text{HNO}_3$  at 20°C for 1.5 hr. Prismatic IX (1.43 g from 1.86 g VIII) (mp 294—295°C, decomposes) was prepared by heating VIII,  $\text{H}_2\text{O}$ , and  $\text{Na}_2\text{S}$  for 1 hr at 100°C. 5,7,10-Trichloroanthra[1,2-c]-[1,2,5]thiadiazole-6,11-dione (X) (70% yield, mp 298—299°C) was obtained by treating IX with  $\text{SOCl}_2$ . Orig. art. has: 1 table.

[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 18Jul66/ ORIG REF: 007/ OTH REF: 012

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ACC NR: AP8035534

SOURCE CODE: UR/0079/68/038/010/2260/2265

AUTHOR: Grapov, A. F.; Lebedeva, N. V.; Mel'nikov, N. N.

ORG: All-Union Scientific Research Institute of Chemicals for Plant Protection (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

TITLE: Organic insectofungicides. Synthesis of amido esters of alkyl-, chloroalkyl-, and arylthiophosphonic acids

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2260-2265

TOPIC TAGS: fungicide, phosphonic acid, thiophosphonate ester

ABSTRACT: The title compounds were synthesized to study their biological activity and the mechanism of their action on the plant cell. Ethyl methylamidomethylthiophosphonate (73.5% yield, bp<sub>0.22</sub> 65.5°C), I, and II (see Table 1) were synthesized by adding alkylamine to ethylmethylthiophosphonyl chloride in  $\text{CHCl}_3$  at 5—8°C. 2,4-Dichlorophenyl isopropylamidoethylthiophosphonate (57.3% yield, bp<sub>0.25</sub> 153—154°C), III, XIV, XV, and XVI were prepared by adding 1 mole of the corresponding O-chlorophenyl-N-isopropylamidothiophosphonyl chloride in ether to 2 moles of  $\text{RMgBr}$  in ether (see reaction 4) and extracting with  $\text{NH}_4\text{Cl}$ .

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UDC: 661.718+652.95

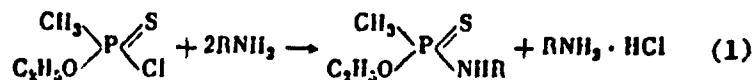


Table 1



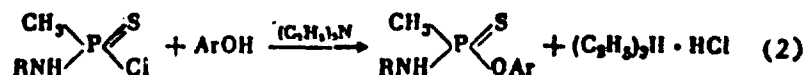
No.	R	R'	R''	% Yield	Bp (p in mm) or mp
I	CH <sub>3</sub>	iso-Pr	C <sub>6</sub> H <sub>5</sub>	77.4	69—70° (0.2)
II	CH <sub>3</sub>	sec-Bu	C <sub>6</sub> H <sub>5</sub>	81.5	78—78.5 (0.18)
III	CH <sub>3</sub>	iso-Pr	2,4-Cl <sub>2</sub> C <sub>6</sub> H <sub>3</sub>	48.3	144.5—145 (0.2) *
IV	CH <sub>3</sub>	iso-Pr	2,4,5-Cl <sub>3</sub> C <sub>6</sub> H <sub>2</sub>	47.5	93.2—94.5
V	CH <sub>3</sub>	iso-Pr	C <sub>6</sub> Cl <sub>5</sub>		154.5—155.5
VI	CH <sub>3</sub>	Bu	C <sub>6</sub> Cl <sub>5</sub>	41.5	114.5—115.5
VII	CH <sub>3</sub>	iso-Bu	2,4,5-Cl <sub>3</sub> C <sub>6</sub> H <sub>2</sub>	61.3	49.5—52
VIII	CH <sub>3</sub>	iso-Bu	C <sub>6</sub> Cl <sub>5</sub>	52.6	132—133.5
IX	CH <sub>3</sub>	sec-Bu	2,4,5-Cl <sub>3</sub> C <sub>6</sub> H <sub>2</sub>	77.1	53—55
X	OH	sec-Bu	C <sub>6</sub> Cl <sub>5</sub>	58.2	123—124
XI	ClCH <sub>2</sub>	iso-Pr	2,4,5-Cl <sub>3</sub> C <sub>6</sub> H <sub>2</sub>	61	155 (0.16) **
XII	ClCH <sub>2</sub> CH <sub>2</sub>	iso-Pr	2,4-Cl <sub>2</sub> C <sub>6</sub> H <sub>3</sub>	42.5	172.5—173 (0.28)
XIII	ClCH <sub>2</sub> CH <sub>2</sub>	sec-Bu	2,4-Cl <sub>2</sub> C <sub>6</sub> H <sub>3</sub>	62.7	154.5 (0.17)
XIV	C <sub>6</sub> H <sub>5</sub>	iso-Pr	2,4,5-Cl <sub>3</sub> C <sub>6</sub> H <sub>2</sub>	51.4	90—92
XV	C <sub>6</sub> H <sub>5</sub>	iso-Pr	2,4-Cl <sub>2</sub> C <sub>6</sub> H <sub>3</sub>	25.7	134.5—136 (0.28)
XVI	C <sub>6</sub> H <sub>5</sub>	iso-Pr	2,4-Cl <sub>2</sub> C <sub>6</sub> H <sub>3</sub>	26.6	163—170 (0.2)

\* Mp 29—30°C.

\*\* Mp 41—43°C.

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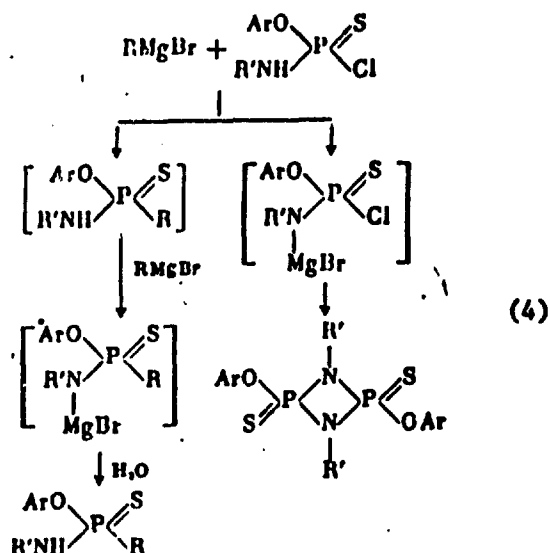
2,4,5-Trichlorophenyl butylamidomethylthiophosphonate (51% yield, mp 57.5—58.5°C) and IV—X were synthesized by adding the corresponding chlorophenols in ether to N-alkylamidomethylthiophosphonyl chlorides and Et<sub>3</sub>N in ether at 0—10°C. 2,4,5-Trichlorophenyl isobutylamidochloromethylthiophosphonate (53.4% yield, bp<sub>0.15</sub> 163—164°C,



mp 31—34°C) and XI—XIII were prepared by adding alkylamine in CHCl<sub>3</sub> to the corresponding chlorophenylchloroalkylthiophosphonyl chlorides in CHCl<sub>3</sub> at 6—8°C. 1,3-Diisopropyl-2,4-bis(2',4'-dichlorophenoxy)-2,4-dithiocyclodiphosphazane (mp 162—163°C) was obtained in negligible yield from the reaction of 1 mole of BuMgBr with 1 mole of 2,4-dichlorophenyl isopropylamidochlorothiothiophosphate. N-Isobutylamidomethylthiophosphonyl chloride (54% yield, bp<sub>0.15</sub> 96—96.5°C) and



N-sec.-butylamidomethylthiophosphonyl chloride (56.3% yield, bp<sub>0.2</sub> 90°C) were prepared by adding the corresponding butylamine in ether to



methylthiophosphonyl dichloride and Et<sub>3</sub>N in ether at -16 to -10°C. 2,4-Dichlorophenyl-β-chloroethylthiophosphonyl chloride (36.2% yield, bp<sub>0.17</sub> 140—141°C) was prepared by adding Et<sub>3</sub>N to β-chloroethylthiophosphonyl dichloride and 2,4-dichlorophenol in ether at -15 to -10°C. Tests of biological activity of I—XVI revealed that in the transition

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ACC NR: AP8035534

from 0-2,4-dichlorophenyl- to 2,4,5-trichlorophenyl- and pentachlorophenyl-N-alkylamidomethyl- or chloromethylthiophosphonates the herbicidal activity falls sharply, but there occurs just as intense an increase in fungicidal properties. Replacement of the aryl radical with an alkyl renders the compounds practically inactive, both herbicidally and fungicidally. Compound XI (i.e., R = ClCH<sub>2</sub>) was found to be the most herbicidally active. The authors thank Ye. I. Andreyeva, L.A. Bakumenko, T. S. Pronchenko, and L.D. Stonov for performing the tests of biological activity. Orig. art. has: 1 table.

[WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 05Oct67/ ORIG REF: 006/ OTH REF: 001

Card 5/5

AUTHOR: Gunar, M. I.; Shumyatskaya, T. N.; Mikhalyutina, Ye. B.; Shvetsova-Shilovskaya, K. D.; Mel'nikov, N. N.

ORG: All-Union Scientific Research Institute of Chemicals for Plant Protection (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

TITLE: Organic insectofungicides. Synthesis of some dialkyl acylaryl phosphates and thiophosphates

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2254-2260

TOPIC TAGS: organic phosphorus insecticide, phosphate ester, thiophosphate ester

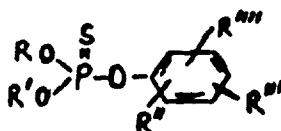
ABSTRACT: The title compounds were synthesized to study the relationship between their structure and their toxicity for insects and warm-blooded animals. Dialkyl acetylphenyl, acetylchlorophenyl, acetyltolyl, acetylxylyl, propionylphenyl, and isobutyrylphenyl thiophosphates (I—XXXV) were synthesized by adding  $K_2CO_3$  to the corresponding acylphenols in MeCN and heating for 30 min at 60°C. After addition of dialkyl chlorothiophosphate, the reaction mixture was

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UDC: 547.241+615.777/779

ACC NR: AP8035533

Table 1



No.	R	R'	R''	R'''	R''''	X Yield	Bp (p in mm)	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
I	CH <sub>3</sub>	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	H	H	31	120—126 (0.14)	1.2465	1.5372
II	CH <sub>3</sub>	C <sub>2</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	H	H	32	120—124 (0.18)	1.2245	1.5318
III	C <sub>2</sub> H <sub>5</sub>	C <sub>2</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	H	H	27	110—114 (0.09)	1.1911	1.5271
IV	CH <sub>3</sub>	CH <sub>3</sub>	3-C(O)CH <sub>3</sub>	H	H	39	128—130 (0.14)	1.2535	1.5390
V	CH <sub>3</sub>	C <sub>2</sub> H <sub>5</sub>	3-C(O)CH <sub>3</sub>	H	H	34	124—128 (0.1)	1.2591	1.5350
VI	C <sub>2</sub> H <sub>5</sub>	C <sub>2</sub> H <sub>5</sub>	3-C(O)CH <sub>3</sub>	H	H	74	120—124 (0.1)	1.1378	1.5260
VII	CH <sub>3</sub>	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	H	H	49	120—123 (0.08)	1.2648	1.5445
VIII	CH <sub>3</sub>	C <sub>2</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	H	H	59	121—124 (0.1)	1.2338	1.5368
IX	C <sub>2</sub> H <sub>5</sub>	C <sub>2</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	H	H	53	127—130 (0.08)	1.1822	1.5280
X	CH <sub>3</sub>	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	4-Cl	H	29	136—143 (0.15)	1.3519	1.5510

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Table 1. (Cont.)

XI	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	4-Cl	H	48	127-130 (0.1)	1.3246	1.5418
XII	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	4-Cl	H	72	128-130 (0.13)	1.2531	1.5295
XIII	CH <sub>3</sub>	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	5-Cl	H	64	129-131 (0.2)	1.3332	1.5520
XIV	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	5-Cl	H	48	123-124 (0.1)	1.2924	1.5377
XV	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	5-Cl	H	57	125-127 (0.1)	1.2542	1.5325
XVI	CH <sub>3</sub>	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	6-Cl	H	62	135-143 (0.2)	1.3463	1.5538
XVII	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	6-Cl	H	15	138-140 (0.13)	1.2942	1.5339
XVIII	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	6-Cl	H	40	125-127 (0.08)	1.2669	1.5312
XIX	CH <sub>3</sub>	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	2-Cl	H	25	153-160 (0.18)	1.3397	1.5559
XX	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	2-Cl	H	38	150-153 (0.12)	1.3021	1.5505
XXI	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	2-Cl	H	45	141-149 (0.12)	1.2595	1.5359
XXII	CH <sub>3</sub>	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	4-CH <sub>3</sub>	H	37	133-138 (0.15)	1.2340	1.5405
XXIII	CH <sub>3</sub>	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	5-CH <sub>3</sub>	H	33	132-138 (0.17)	1.1864	1.5388
XXIV	CH <sub>3</sub>	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	2-CH <sub>3</sub>	H	53	153-158 (0.18)	1.2400	1.5465
XXV	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	2-CH <sub>3</sub>	H	54	156-160 (0.15)	1.2003	1.5372
XXVI	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	2-CH <sub>3</sub>	H	71	158-160 (0.18)	1.1635	1.5206
XXVII	CH <sub>3</sub>	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	H	64	155-161 (0.22)	1.2404	1.5442

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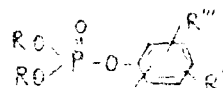
Table 1. (Cont.)

XXVIII	Cl <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	2-CH <sub>3</sub>	H	60	147-148 (0.2)	1.2453	1.5360
XXIX	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	H	78	152-154 (0.2)	1.1656	1.5290
XXX	CH <sub>3</sub>	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	5-CH <sub>3</sub>	38	150-155 (0.05)	1.1407	1.5330
XXXI	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	5-CH <sub>3</sub>	28	155-158 (0.05)	1.1733	1.5300
XXXII	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	5-CH <sub>3</sub>	60	145-147 (0.05)	1.1977	1.5194
XXXIII	CH <sub>3</sub>	CH <sub>3</sub>	4-C(O)C <sub>6</sub> H <sub>5</sub>	H	H	41	142-147 (0.1)	1.2264	1.5420
XXXIV	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	4-C(O)C <sub>6</sub> H <sub>5</sub>	H	H	66	148-152 (0.1)	1.1951	1.5321
XXXV	CH <sub>3</sub>	C <sub>6</sub> H <sub>5</sub>	2-C(O)C <sub>6</sub> H <sub>5</sub> -iso	H	H	60	114-115 (0.07)	1.12	1.5229

heated for 2 hr at 75-80°C. Dialkyl acetylphenyl, acetylchlorophenyl, acetyltolyl, acetylxyllyl, and propionylphenyl phosphates (XXXVI-LVII) were synthesized similarly from dialkyl chlorophosphates. Compounds XXXV, LVI, O,O-dimethyl O-2-benzoyl-3,4,6-trichlorophenyl thiophosphate (LVIII) (45% yield, mp 105-106°C), O,O-dimethyl O-2-benzoyl-3,4,6-trichlorophenyl phosphate (LIX) (59% yield, mp 109-111°C), O,O-diethyl O-2-benzoyl-3,4,6-trichlorophenyl phosphate (LX) (82% yield, mp 100-101°C), and O,O-diethyl O-1-acetyl-2-naphthyl phosphate (LXI) (44% yield, bp<sub>0.1</sub> 160-162°C) were synthesized by adding Na to

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Table 2



No.	R	R'	R''	R'''	% Yield	Bp (p in mm)	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
XXXVI	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	H	H	23	122--123° (0.12)	1.2677	1.5019
XXXVII	C <sub>2</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	H	H	46	117--120 (0.14)	1.1836	1.4850
XXXVIII	CH <sub>3</sub>	3-C(O)CH <sub>3</sub>	H	H	21	133--135 (0.15)	1.2522	1.4998
XXXIX	C <sub>2</sub> H <sub>5</sub>	3-C(O)CH <sub>3</sub>	H	H	43	139--140 (0.12)	1.1754	1.4926
XL	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	H	H	61	124--130 (0.08)	1.2539	1.5070
XLI	C <sub>2</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	H	H	70	130--133 (0.1)	1.1846	1.4970
XLII	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	4-Cl	H	27	130--131 (0.16)	1.3061	1.5138
XLIII	C <sub>2</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	4-Cl	H	56	130--132 (0.12)	1.2545	1.5004
XLIV	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	5-Cl	H	56	130--137 (0.09)	1.3456	1.5163
XLV	C <sub>2</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	5-Cl	H	63	126--129 (0.12)	1.2534	1.5030
XLVI	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	6-Cl	H	30	127--129 (0.11)	1.3555	1.5180

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Table 2. (Cont.)

XLVII	C <sub>2</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	6-Cl	H	43	136--140 (0.14)	1.2649	1.5068
XLVIII	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	2-Cl	H	23	152--153 (0.15)	1.3556	1.5218
XLIX	C <sub>2</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	2-Cl	H	49	150--161 (0.12)	1.2699	1.5094
L	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	2-CH <sub>3</sub>	H	27	148--150 (0.13)	1.3072	1.5190
LI	C <sub>2</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	2-CH <sub>3</sub>	H	50	149--152 (0.16)	1.2710	1.4998
LII	CH <sub>3</sub>	4-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	H	65	152--154 (0.2)	1.3383	1.5115
LIH	C <sub>2</sub> H <sub>5</sub>	4-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	H	68	150--151 (0.2)	1.1740	1.5015
LIV	CH <sub>3</sub>	2-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	5-CH <sub>3</sub>	38	135--137 (0.05)	1.2023	1.5040
LV	C <sub>2</sub> H <sub>5</sub>	2-C(O)CH <sub>3</sub>	3-CH <sub>3</sub>	5-CH <sub>3</sub>	12	145--150 (0.05)	1.1636	1.4935
LVI	C <sub>2</sub> H <sub>5</sub>	2-C(O)C <sub>2</sub> H <sub>5</sub>	H	H	23	130--132 (0.1)	1.2565	1.4930
LVII	CH <sub>3</sub>	4-C(O)C <sub>2</sub> H <sub>5</sub>	H	H	55	149--152 (0.08)	1.2273	1.5070

the corresponding acylphenols in toluene at 90°C. After the addition of dialkyl chloro(thio)phosphate, the reaction mixture was heated for 6 hr at 110°C. Tests of pesticidal activity revealed that some of the obtained compounds (unspecified) possess insecticidal activity of the same order as Chlorophos and are of low toxicity for warm-blooded

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ACC NR: AP8035533

animals because of the second electrophilic or electron-donor substituent in the aryl radical. Orig. art. has: 3 tables.

[WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 14Aug67/ ORIG REF: 003

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ACC NR: AP8037854

SOURCE CODE: UR/0409/68/000/005/0845/0847

AUTHOR: Gyul'budagyan, L. V.; Chukhadzhyan, E. O.

ORG: Yerevan State University (Yerevanskiy gosudarstvennyy universitet)

TITLE: New derivatives of 4-quinaldinol. XII. 3-( $\gamma,\gamma$ -Dichloroallyl)-4-quinaldinols and their derivatives

SOURCE: Khimiya geterotsiklicheskikh soyedineniy, no. 5, 1968, 845-847

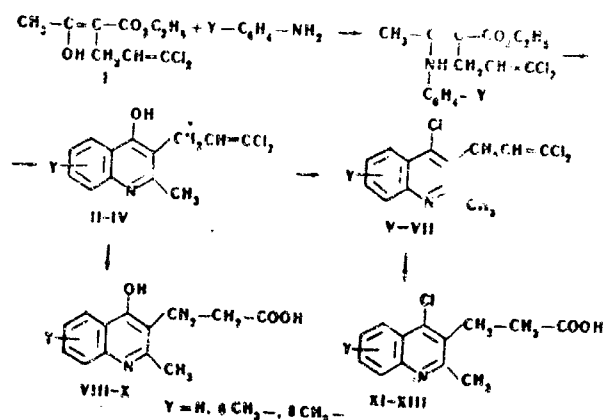
TOPIC TAGS: quinoline, carboxylic acid

ABSTRACT: Ethyl  $\alpha,\gamma$ -dichloroallyl)acetoacetate (I) (44.7 % yield, bp<sub>2</sub> 114—116°C, n<sub>D</sub><sup>20</sup> 1.4780, d<sub>4</sub><sup>20</sup> 1.2576) was prepared by adding Na and 1,1,3-trichloro-1-propene to benzene, EtOH, and AcCH<sub>2</sub>CO<sub>2</sub>Et and heating. Compound I was also prepared from 1,1,1-trichloro-2-propene. White crystalline 2-methyl-3-( $\gamma,\gamma$ -dichloroallyl)-4-hydroxyquinoline (II) (69 % yield, mp 267°C) was synthesized by boiling I, benzene, 2—3 drops of HOAc, and PhNH<sub>2</sub> and adding the product to petrolatum heated to 250°C. 2,6-Dimethyl-3-( $\gamma,\gamma$ -dichloroallyl)-4-hydroxyquinoline (III) (87.4 % yield, mp 270°C) and 2,8-dimethyl-3-( $\gamma,\gamma$ -dichloroallyl)-4-hydroxyquinoline (IV) (89.2 % yield, mp 235°C) were similarly prepared.

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UDC: 547.831.4.7:542.944.1

ACC NR: AP8037854



Card 2/3

ACC NR: AP8037854

2-Methyl-3-(γ,γ-dichloroallyl)-4-chloroquinoline (V) (72.1 % yield, mp 102°C) was synthesized by heating II and POCl<sub>3</sub> for 3—4 hr. 2,6-Dimethyl-3-(γ,γ-dichloroallyl)-4-chloroquinoline (VI) (75.4 % yield, mp 105°C) and 2,6-dimethyl-3-(γ,γ-dichloroallyl)-4-chloroquinoline (VII) (69.2 % yield, mp 76°C) were similarly prepared. White crystalline β-(2-methyl-4-hydroxyquinolyl) propionic acid (VIII) (59.6 % yield, mp 284°C) was obtained by heating II and 96 % H<sub>2</sub>SO<sub>4</sub>. β-(2,6-Dimethyl-4-hydroxyquinolyl)propionic acid (IX) (64.1 % yield, mp 290°C), β-(2,8-dimethyl-4-hydroxyquinolyl)propionic acid (X) (58.3 % yield, mp 256°C), β-(2-methyl-4-chloroquinolyl)propionic acid (XI) (61.5 % yield, mp 267°C), β-(2,6-dimethyl-4-chloroquinolyl)propionic acid (XII) (70.9 % yield, mp 275°C), and β-(2,8-dimethyl-4-chloroquinolyl)propionic acid (XIII) (65.7 % yield, mp 242°C) were similarly prepared. Orig. art. has: 3 tables. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 18Jul65/ ORIG REF: 005

Card 3/3

ACC NR: AT8033764

SOURCE CODE: HU/2502/68/057/002/0219/0223

AUTHOR: Hankovszky, O. H. (Pecs); Hideg, K. (Pecs)

ORG: Institute of Pharmacology, University Medical School, Pecs

TITLE: O-Alkylation of 2-(hydroxyphenyl)- and 2-(hydroxy-benzyl) benzazoles

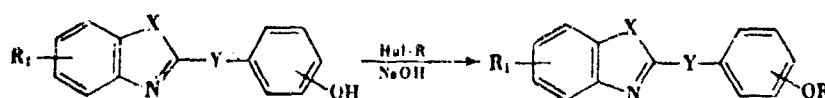
SOURCE: Academia scientiarum hungarica. Acta chimica, v. 57, no. 2, 1968, 219-223

TOPIC TAGS: biologically active compound, benzimidazole derivative, organic nitrogen compound, benzimidazole

ABSTRACT: In an earlier publication of this series, the alkylation of the imino group of benzimidazoles by means of alkyl halides or halogen acetamides, respectively, was reported. In the present paper, we report that 2-hydroxy-phenyl or 2-hydroxy-benzyl-substituted benzimidazoles are selectively alkylated at the phenolic hydroxyl group on treatment with an equivalent amount of halogen alkylamines or halogen acetamide. Evidently, 2-(hydroxyphenyl)benzoxazole and benzthiazole

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ACC NR: AT8033764



can be O-alkylated in this way. The fact that in the case of benzimidazole the NH group has remained intact during the alkylation reaction is clearly demonstrated by the appearance of a stretching vibration band in the infrared spectrum of the alkylated derivative at  $2.9-3.0 \mu$ , indicating the presence of an NH group, as well as by intense bands at  $9.2-9.4 \mu$  characteristic of aryl-alkyl ethers. Biological tests

#### Biological activity

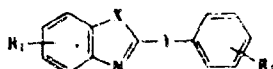
revealed the physiological activity of these derivatives. Some characteristics of the relationship between chemical constitution and pharmacological action are as follows: 1. Particularly the benzimidazole derivatives exhibit selective coronary dilatatory effect. 2. The effectiveness depends on the position of substituent  $R_1$ , position 4' being more favourable than position 2'. 3. The effectiveness also


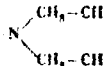
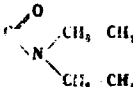
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ACC NR: AT8033764

depends on the carboxamide group. In the case of an aliphatic carboxamide the activity is higher than in case of alicyclic amides. The

Table 1



No.	R <sub>1</sub>	R <sub>2</sub>	X	Y	Yield %	M p. °C.	Formula (Molecular weight)	Analysis, %			-
								C	H	N	
1	H	4'-OCH <sub>3</sub> 	NH	CH <sub>2</sub>	70	201-202 207-210	C <sub>16</sub> H <sub>11</sub> N <sub>3</sub> O (315.38) C <sub>16</sub> H <sub>11</sub> N <sub>3</sub> O · 2HCl (388.31)	76.16	5.43	13.33	
								76.34	6.08	13.57	
								61.87	4.93	10.82	
								61.57	5.12	10.46	
2	H	4'-OCH <sub>2</sub> -CH <sub>2</sub> -N 	NH	CH <sub>2</sub>	75	35-36 197-200	C <sub>20</sub> H <sub>23</sub> N <sub>3</sub> O (323.44) C <sub>20</sub> H <sub>23</sub> N <sub>3</sub> O · 2HCl (396.37)	74.27	7.79	12.99	
								74.50	7.89	12.40	
								60.61	6.86	10.60	
								60.34	6.78	10.20	
3	H	4'-OCH <sub>2</sub> -N 	NH	CH <sub>2</sub>	90	130-131 159-161	C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O (327.43) C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O · HCl (390.46)	71.20	6.97	12.46	28.130*
								71.20	6.87	12.47	
								64.25	6.47	11.24	
								64.27	6.47	11.31	

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ACC NR: AT8033764

Table 1. (Cont.)

4	H	4'-OCH <sub>2</sub> -N	NH	CH <sub>2</sub>	65	126-128	C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O · HCl (401.96)	65.75	7.02	10.45	
								66.08	7.00	10.41	
5	H	4'-OCH <sub>2</sub> -N	NH	CH <sub>2</sub>	70	134-136	C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O · HCl (400.00)	67.04	7.50	9.77	
								67.11	7.47	9.56	
6	2(6)Cl	4'-OCH <sub>2</sub> -N	NH	CH <sub>2</sub>	75	92-93	C <sub>18</sub> H <sub>17</sub> ClN <sub>3</sub> O <sub>2</sub> · HCl (408.34)	58.13	5.47	10.29	
								58.50	5.47	9.93	
7	H	4'-OCH <sub>2</sub> -N	NH	CH <sub>2</sub>	55	86-89 195-198	C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub> (339.44) C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub> · HCl (402.90)	71.62	6.31	12.53	
								71.32	6.21	12.73	
								67.36	6.27	10.89	
								67.50	6.05	11.20	
8	H	2'-OCH <sub>2</sub> -N	NH	CH <sub>2</sub>	74	122-125 204-206	C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub> (339.44) C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub> · HCl (402.90)	70.57	5.54	12.99	28.130
								70.26	6.88	13.09	
								63.42	6.16	12.68	28.131
								63.97	6.16	11.67	
9	H	3'-OCH <sub>2</sub> -N	NH	CH <sub>2</sub>	90	115-116 174-180	C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub> (339.44) C <sub>18</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub> · HCl (402.90)	67.97	6.56	11.69	
								67.89	6.47	11.70	
								61.61	6.21	10.78	
								61.50	6.12	10.55	

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Table 1. (Cont.)

10	II	$\begin{array}{c} \text{O} \\ \parallel \\ \text{2' OCH}_2 - \text{C} \\   \\ \text{NH} \\   \\ \text{CH}_2 - \text{CH} - \text{C}_6\text{H}_5 \end{array}$	NH	72	180-182	$\text{C}_{15}\text{H}_{15}\text{N}_3\text{O}_2 \cdot \text{HCl}$ (407.91)	67.73 67.85	5.44 5.20	10.30 10.15	
11	II	$\begin{array}{c} \text{O} \\ \parallel \\ \text{2' OCH}_2 - \text{C} \\   \\ \text{N} \\ / \quad \backslash \\ \text{CH}_2 - \text{CH}_3 \quad \text{CH}_2 - \text{CH}_3 \end{array}$	O	60	100-102	$\text{C}_{15}\text{H}_{15}\text{N}_3\text{O}_2 \cdot \text{HCl}$ (360.85)	63.24 63.50	5.86 5.90	7.7 7.80	14.17
12	II	$\begin{array}{c} \text{O} \\ \parallel \\ \text{2' OCH}_2 - \text{C} \\   \\ \text{N} \\ / \quad \backslash \\ \text{CH}_2 - \text{CH}_3 \quad \text{CH}_2 - \text{CH}_3 \end{array}$	S	65	46-49 76-79	$\text{C}_{15}\text{H}_{15}\text{N}_3\text{O}_2\text{S}$ (340.45) $\text{C}_{15}\text{H}_{15}\text{N}_3\text{O}_2\text{S} \cdot \text{HCl}$ (377.10)	67.04 67.15 60.52 60.70	5.92 6.00 5.61 5.68	8.23 8.33 7.43 7.60	

\* Sadtler Standard Spectra Collection  
 \*\* NMR Collection, No. 1832M

compounds prepared are summarized in Table 1.

#### Experimental

##### 2-[ortho-(2-Benzimidazolyl)phenoxy]-N,N-diethylacetamide (No. 8)

21.0 g (0.1 mole) of 2-(2'-hydroxyphenyl) benzimidazole was dissolved in ethanol (200 ml) and a solution containing 4 g (0.1 mole) of NaOH

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in about 10 ml of water was added. 14.9 g (0.1 mole) of N,N-diethyl-chloroacetamide was added, and the reaction mixture refluxed for 2 hrs. The NaCl which separated was filtered off and the filtrate concentrated. The residue was crystallized from 50% aqueous EtOH to yield 24.0 g (74%) of the product, m.p. 122-5°. Dry HCl gas was passed into a solution

#### Hydrochloride

of the base in acetone to precipitate the hydrochloride, which was recrystallized from EtOH, m.p. 204-6°. The IR and NMR spectroscopical measurements were made by Sadtler Research Laboratories (Philadelphia) and the spectra have been published in the proceedings of that Laboratory (Sadtler Standard Spectra Collection), for which the authors wish to express their thanks. The biological experiments were accomplished in our Institute by Prof. Dr. Mehes, Prof. Dr. Szekeres and Dr. Papp. The results are to be published in detail elsewhere. The authors thank Mrs. M. Ott and Miss T. Huszar for the microanalyses and for technical assistance. Orig. app. has: 1 table. [WA-50; CFE No. 38][BN]

SUB CODE: 07/ SUBM DATE: 17Oct67

Card 6/6

ACC NR: AT8033763

SOURCE CODE: HU/2502/68/057/002/0213/0217

AUTHOR: Hideg, K. (Pecs); Hankovszky, O. H. (Pecs)

ORG: Institute of Pharmacology, University Medical School, Pecs

TITLE: Preparation of 1H,-2,3-dihydro-6,7-benzo[1,5]-diazepines and their reduction to 1H,-2,3,4,5-tetrahydro-6,7-benzo-[1,5]-diazepines

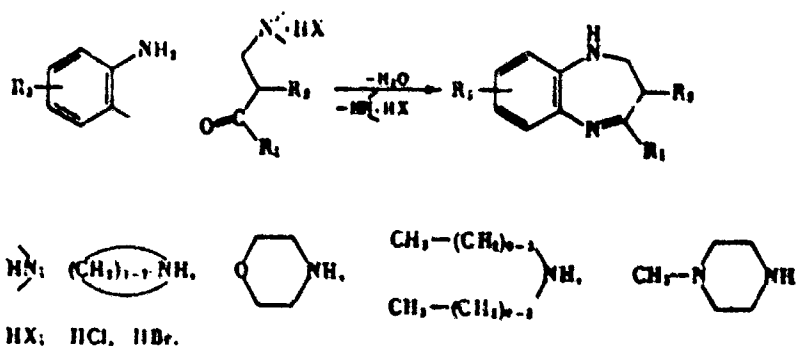
SOURCE: Academia scientiarum hungarica. Acta chimica, v. 57, no. 2, 1968, 213-217

TOPIC TAGS: aromatic amine, azepine derivative, heterocyclic nitrogen compound

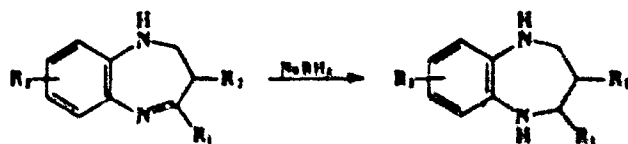
ABSTRACT: In previous publications of this series [Hideg, K., Hankovszky, H. O.: Acta Chim. Acad. Sci. Hung. 50, 403 (1966); Hideg, K., Hankovszky, H. O.: Acta Chim. Acad. Sci. Hung. 56, 405 (1968)] a new method has been reported for the synthesis of 2,3-dihydro-6,7-benzo-[1,5]-thiazepines. Now this method has been extended to diazepines. When o-phenylenediamine or its ring-substituted derivatives are refluxed with a salt of  $\beta$ -aminoketones (readily prepared from alicyclic or aryl-alkyl ketones by MANNICH reaction) in some organic solvent, e.g. alcohols, benzene, toluene, xylene, etc., the following  $\beta$ -elimination-addition and condensation reactions take place:

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ACC NR: AT8033763



The meaning of substituents  $R_1$ ,  $R_2$  and  $R_3$  are given in the Tables. A secondary amine salt and water are formed in the reaction as by-products. If some apolar solvent is applied, and the water formed in the reaction

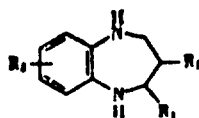


Card 2/7

ACC NR. AT8033763

is continuously removed by azeotropic distillation (also removing the secondary amine salt), the progress of the reaction can be followed.

Table I



No.	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	Yield %	M. p., °C or B. p., °C/mm	Formula (Molecular weight)	Analysis, %		
							C	H	N
							Calcd./Found		
1		H	H	60	42-43	C <sub>11</sub> H <sub>15</sub> N <sub>2</sub> (222.30)	81.04 80.90	6.35 6.45	12.61 12.33
2		H	7(B)Cl	48	45-46 250-253/0.1	C <sub>16</sub> H <sub>17</sub> ClN <sub>2</sub> (356.73)	70.17 70.11	5.10 5.25	10.92 10.80
3		CH <sub>3</sub>	H	76	36-39	C <sub>11</sub> H <sub>16</sub> N <sub>2</sub> (250.35)	81.56 81.70	7.25 7.40	11.19 10.98

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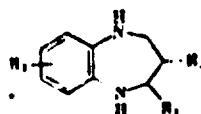
ACC NR. AT8033763

Table 1. (Cont.)

4		H	H	90	119-120	C <sub>11</sub> H <sub>11</sub> N <sub>2</sub> O (230.29)	75.61 75.70	5.92 6.11	11.76 11.50
5		H	7.8(CH <sub>3</sub> ) <sub>6</sub>	87	134-136	C <sub>17</sub> H <sub>17</sub> N <sub>2</sub> O (306.34)	76.67 76.97	6.81 6.78	16.32 16.71
6		H	7.8(CH <sub>3</sub> ) <sub>6</sub>	92	173-174	C <sub>18</sub> H <sub>19</sub> N <sub>2</sub> O (306.37)	77.11 77.14	7.19 7.42	9.99 9.87
7		H	7.8(CH <sub>3</sub> ) <sub>6</sub>	61	47-48	C <sub>18</sub> H <sub>19</sub> N <sub>2</sub> O (306.37)	77.11 76.90	7.19 7.32	9.99 9.63
8		H	7.8(CH <sub>3</sub> ) <sub>6</sub>	28	279-282	C <sub>11</sub> H <sub>10</sub> N <sub>2</sub> O <sub>2</sub> ·HCl (331.66)	61.54 61.48	5.46 5.23	12.67 12.63
9	-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -		H	49	40-44	C <sub>7</sub> H <sub>10</sub> N <sub>2</sub> (200.29)	77.96 77.04	8.05 8.13	13.99 13.75
10	-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -		7(B)CH <sub>3</sub>	75	175/0.15 222-225	C <sub>16</sub> H <sub>16</sub> N <sub>2</sub> (216.31) C <sub>17</sub> H <sub>16</sub> N <sub>2</sub> ·HCl (250.77)	78.47 78.29 67.06 67.12	8.46 8.20 7.63 7.67	13.07 13.17 11.17 11.37
11	-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -		7.8(CH <sub>3</sub> ) <sub>6</sub>	68	53-54	C <sub>11</sub> H <sub>16</sub> N <sub>2</sub> (250.35)	78.90 78.70	8.63 8.62	12.27 12.57

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Table II



No.	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	Yield %	M.p., °C or B.p., °C/mm	Formula (Molecular weight)	Analysis, %		
							C	H	N
							Calcd Found		
12		H	7.8(CH <sub>3</sub> ) <sub>2</sub>	85	128-129	C <sub>20</sub> H <sub>20</sub> N <sub>2</sub> O (268.36)	76.09 75.84	7.51 7.44	16.41 16.66
13		H	7.8(CH <sub>3</sub> ) <sub>2</sub>	70	127-128	C <sub>20</sub> H <sub>20</sub> N <sub>2</sub> O (282.39)	76.56 76.74	7.85 7.80	9.94 10.09
14	-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -		7.8(CH <sub>3</sub> ) <sub>2</sub>	65	169/0.1	C <sub>21</sub> H <sub>22</sub> N <sub>2</sub> (274.33)	77.73 77.77	9.32 9.33	12.95 12.89

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ACC NR: AT8033763

The C = N bond of the dihydro derivative is slightly basic; a salt is obtained with hydrochloric acid in alcoholic medium. The C = N double bond can be reduced with sodium borohydride in alcoholic solution to obtain the tetrahydro derivative in high yields. The reduction is accompanied by vanishing of the yellow colour of the dihydro derivative, together with the higher wave length maximum in the UV spectrum. The compounds prepared are listed in Tables I and II.

### Experimental

#### 1H,-2,3-Dihydro-4-(4'-methoxyphenyl)-6,7-benzo-(7,8-dimethyl)-[1,5]-diazepine (No. 6)

A suspension of 13.4 g (0.1 mole) of 4,5-dimethyl o-phenylenediamide and 28.3 g (0.1 mole) of 8-piperidino-p-methoxypropionophenone hydrochloride in 100 ml of xylene were refluxed for 2 hrs. in an apparatus equipped with a MARCUSON water separatory adapter. During this period 1.8 ml (0.1 mole) of water collected in the adapter. The reaction mixture was filtered still hot to separate piperidine hydrochloride (12 g). On cooling, the filtrate deposited orange crystals (92%). Recrystallization from xylene gave a product of m.p. 173-4°.

EtOH c. 0.5 · 10<sup>3</sup> mole  
λ<sub>max</sub> (log ε) mμ 276 (3.01), 360 (2.58).

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ACC NR. AI8033763

1H,-2,3,4,5-Tetrahydro-4-(4'-methoxyphenyl)-6,7-benzo-(7,8-dimethyl)-[1,5]-diazepine (No. 13)

28.0 g (0.1 mole) of 1H,-2,3-dihydro-4-(4'-methoxyphenyl)-6,7-benzo-(7,8-dimethyl)-[1,5]-diazepine (No. 6) was dissolved in 250 ml of abs. EtOH, 12 g of sodium borohydride was added, and the mixture refluxed for 3 hrs. The complex was decomposed by the addition of water, the alcohol was removed by distillation, and the residue extracted three times with 50 ml of chloroform each. The organic extracts were combined, dried over anhydrous  $\text{Na}_2\text{SO}_4$  and filtered. The solvent was evaporated and the residue crystallized from 70% EtOH to yield 85% product, m.p.  $127-8^\circ$ .

EtOH c,  $0.5 \cdot 10^{-4}$  mole  
 $\lambda_{\text{max}}$  (log c) m $\mu$  284 (2.24), 302 (2.32)

The authors express their thanks to Mrs. M. Ott and Miss T. Huszar for the microanalyses and for technical assistance. Orig. art. has: 2 tables.  
[WA-50; CBE No. 38][BN]

SUB CODE: 07/ SUBM DATE: 17Oct67/ ORIG REF: 002

Card 7/7

ACC NR: AP8035535

SOURCE CODE: UR/0079/68/038/010/2265/2270

AUTHOR: Italinskaya, T. L.; Mel'nikov, N. N.; Shvetsov-Shilovskiy, N. I.

ORG: All-Union Scientific Research Institute of Chemicals for Plant Protection (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

TITLE: Reaction of phenylhydrazides with phosphorus trichloride

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2265-2270

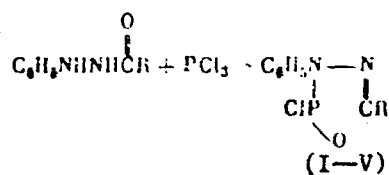
TOPIC TAGS: heterocyclic oxygen compound, organic azole compound, heterocyclic phosphorus compound

ABSTRACT: 4-Alkyl-2-phenyl-1-chloro-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (I-IV) and 4-diphenyl-1-chloro-1,2-dihydro-1,5,2,3-phosphaoxadiazole (V) were synthesized by adding  $\text{PCl}_3$  in  $\text{CH}_2\text{Cl}_2$  to  $\beta$ -acylphenylhydrazine and triethylamine in  $\text{CH}_2\text{Cl}_2$  in a stream of N for 3.5 hr at  $8-12^\circ\text{C}$  and heating for 1 hr. 1-Diethylamido-, 1-diisopropylamido-, 1-n-butylamido-, 1-anilido-, 1-phenylhydrazido-, and 1-piperidido-4-methyl-2-phenyl-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (VI-XI) were synthesized

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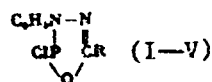
UDC: 547.79+661.718.1

ACC NR: AP8035535



R = CH<sub>3</sub> (I), C<sub>2</sub>H<sub>5</sub> (II), n.-C<sub>4</sub>H<sub>9</sub> (III) iso-C<sub>4</sub>H<sub>9</sub> (IV), C<sub>6</sub>H<sub>5</sub> (V)

Table 1



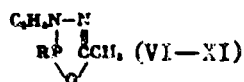
No.	R	Yield %	Bp (p in mm)
I	CH <sub>3</sub>	84	97° (0.2)
II	C <sub>2</sub> H <sub>5</sub>	70.6	112-114.5 (0.3)
III	n.-C <sub>4</sub> H <sub>9</sub>	73.4	120-123 (0.2)
IV	iso-C <sub>4</sub> H <sub>9</sub>	77.8	106-107.5 (0.15)
V	C <sub>6</sub> H <sub>5</sub>	64	204-210 (0.3)


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ACC NR: AP8035535

by adding the corresponding amines in ether to I in ether at 8-9°C in a stream of N for 35 min. 1-chloro-4-alkyl-2-phenyl-1-thio-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (XII-XV) and 1-chloro-2,4-diphenyl-1-thio-1,2-dihydro-1,5,2,3-phosphaoxadiazole (XVI) were prepared by

Table 2



No.	R	Yield %	Mp
VI*	(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> N	40	—
VII	(iso-C <sub>4</sub> H <sub>9</sub> ) <sub>2</sub> N	85	52-55°
VIII	C <sub>6</sub> H <sub>5</sub> NH	69.3	115-120
IX	C <sub>6</sub> H <sub>5</sub> NH	83	101-103
X	C <sub>6</sub> H <sub>5</sub> NHNH	95	113-116
XI**		52.1	—

\* Bp 95-101°C (0.1 mm)

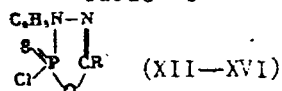
\*\* Bp 128-129°C (0.25 mm)

Card 3/7

ACC NR: AP8035535

quickly heating I--V and  $\text{PSCl}_3$  in a stream of N to 125--155°C.

Table 3



No.	R	% Yield	Bp(p in mm)
XII *	$\text{CH}_3$	71	100--102.5° (0.2)
XIII	$\text{C}_2\text{H}_5$	89.2	85--87.5 (0.08)
XIV	$n\text{-C}_3\text{H}_7$	78.5	109--109.5 (0.2)
XV	$\text{iso-C}_3\text{H}_7$	75.7	121--124 (0.25)
XVI	$\text{C}_6\text{H}_5$	47.0	167--170 (0.12)

\* Mp 45--47°C

1-Alkoxy-4-methyl-2-phenyl-1-thio-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (XVII--XXI) were obtained by adding the corresponding alcohols and trialkylamines in ether to XII in ether at 6--8°C in a stream of N.

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ACC NR: AP8035535

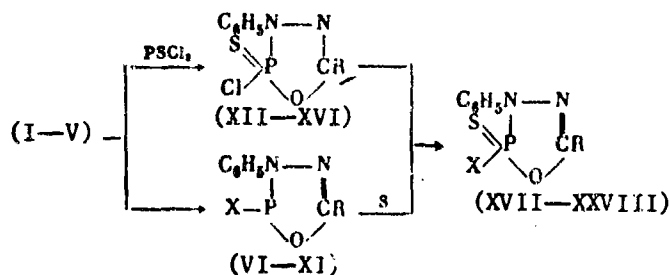
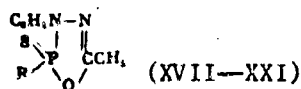


Table 4



No.	R	% Yield	Bp(p in mm)	$d_4^{20}$	$n_D^{20}$
XVII *	$\text{CH}_3\text{O}$	47.3	143--150° (0.2--0.25)	—	—
XVIII	$\text{C}_2\text{H}_5\text{O}$	60.4	136--139 (0.2)	—	1.5720
XIX	$n\text{-C}_3\text{H}_7\text{O}$	64.6	136--138 (0.18)	1.2349	1.5710
XX	$n\text{-C}_4\text{H}_9\text{O}$	54.8	122.5--125 (0.1)	—	—
XXI	$\text{iso-C}_4\text{H}_9\text{O}$	55.6	146--150 (0.18)	1.2190	1.5808

\* Mp 71--73°C



Card 5/7

ACC NR: AP8035535

1-Dialkylamido-, 1-anilido-, 1-piperidido-, and morpholido-4-methyl-2-phenyl-1-thio-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (XXII—XXVIII) were synthesized by adding the corresponding amines, aniline, piperidine, and morpholine, respectively, in ether to XII in ether at 5—10°C in a stream of N and heating for 1 hr at 30—34°C. Compound XXV was also prepared by

Table 5  

$$\begin{array}{c} \text{C}_6\text{H}_5\text{N}-\text{N} \\ \diagup \quad \diagdown \\ \text{S} \quad \text{P} \quad \text{CCH}_3 \\ \diagdown \quad \diagup \\ \text{R} \quad \text{O} \end{array}$$
  
 (XXII—XXVIII)

No.	R	% Yield	Mp
XXII	(CH <sub>3</sub> ) <sub>2</sub> N	66.7	53—58°
XXIII	(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> N	69.0	63—65
XXIV	(n-C <sub>4</sub> H <sub>9</sub> ) <sub>2</sub> N	78.15	63—64
XXV	iso-C <sub>4</sub> H <sub>9</sub> ) <sub>2</sub> N	70.3	88—90
XXVI	C <sub>6</sub> H <sub>5</sub> NH	60.0	106—109
XXVII	 N	66.3	107—109
XXVIII	 N	81.4	97—102

Card 6/7

ACC NR: AP8035535

heating VII and S in a stream of N at 110—125°C for 1.5 hr. Orig.  
 art. has: 5 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 18Aug67/ ORIG REF: 005/ OTH REF: 004

Card 7/7

ACC NR: AP8033580

SOURCE CODE: UR/0062/68/000/010/2388/2390

AUTHOR: Ivasyuk, N. V.; Shermergorn, I. M.

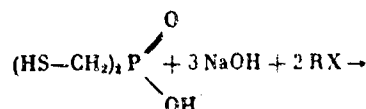
ORG: Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov, Academy of Sciences SSSR (Institut organicheskoy i fizicheskoy khimii Akademii nauk SSSR)

TITLE: Reaction of bis(mercaptomethyl)phosphinic acid with alkyl and acyl halides

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1968, 2388-2390

TOPIC TAGS: halogenated organic compound, aliphatic phosphorus compound, aliphatic sulfur compound, phosphinic acid derivative, aliphatic ester

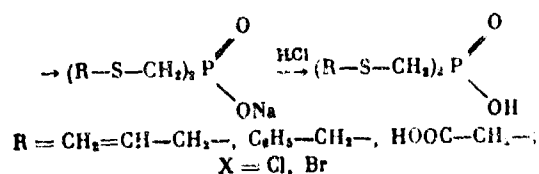
ABSTRACT: The two-stage reaction of bis(mercaptomethyl)phosphinic acid with alkyl, aryl, and acyl halides gave the corresponding acids:



Card 1/3

UDC: 542.91+661.718.1+547.22

ACC NR: AP8033580



The esterification of bis(alkylthiomethyl)phosphinic and bis(carbethoxymethylthiomethyl)phosphinic acids with trialkyl phosphites at 130-140°C

Compound	% Yield	Mp or bp, °C (mm)	n <sub>D</sub> <sup>20</sup>	d <sub>4</sub> <sup>20</sup>
$\begin{array}{c} \text{O} \\ \diagup \\ \text{CH}_2=\text{CH}-\text{CH}_2-\text{S}-\text{CH}_2-\text{P} \\ \diagdown \\ \text{OC}_2\text{H}_5 \end{array}$	60	114-116 (10 <sup>-2</sup> )	1.3280	1.1279
$\begin{array}{c} \text{O} \\ \diagup \\ \text{CH}_2=\text{CH}-\text{CH}_2-\text{S}-\text{CH}_2-\text{P} \\ \diagdown \\ \text{OC}_2\text{H}_5 \end{array}$	40	118-120 (10 <sup>-2</sup> )	1.3182	1.1082
$\begin{array}{c} \text{O} \\ \diagup \\ (\text{CH}_3)_2\text{CH}-\text{CH}_2-\text{S}-\text{CH}_2-\text{P} \\ \diagdown \\ \text{OC}_2\text{H}_5 \end{array}$	40	120-121 (10 <sup>-2</sup> )	1.3187	1.1093
$\begin{array}{c} \text{O} \\ \diagup \\ (\text{C}_2\text{H}_5\text{OOC}-\text{CH}_2-\text{S}-\text{CH}_2-\text{P} \\ \diagdown \\ \text{OC}_2\text{H}_5 \end{array}$	14	136-138 (10 <sup>-2</sup> )	1.3900	1.1346

Card 2/3

ACC NR: AP8033580

$(C_2H_5-CH_2-S-CH_2)_3P(=O)(OH)_2$	67	87-89	--	--
$(C_2H_5-C(=O)-S-CH_2)_3P(=O)(OH)_2$	68	140-141	--	--
$(C_2H_5-CH_2-S(=O)-CH_2)_3P(=O)(OH)_2$	96	256-257	--	--

gave the ethyl, propyl, and butyl esters of the acids. The new acids and their esters are characterized in the table.

[WA-50; CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 11Apr68/ ORIG REF: 001/ OTH REF: 008

Card 3/3

ACC NR: AP8033190

SOURCE CODE: CZ/0060/68/000/004/0151/0151

AUTHOR: Jakl, A. (Lieutenant colonel, Doctor of medicine, Candidate of sciences); Ochrymovic, O.

ORG: Military Medical Research and Postgraduate Institute JEP, Hradci Kralove (Vojensky lekarsky vyzkumny a doskolovaci ustav JEP)

TITLE: Change in the activity of plasma and erythrocyte cholinesterase during the poisoning with malathion

SOURCE: Vojenske zdravotnicke listy, no. 4, 1968, 151-153

TOPIC TAGS: insecticide, phosphate ester, organic phosphorus insecticide, cholinesterase, cholinesterase reactivator, poison effect, antitoxin

ABSTRACT: The change in plasma and erythrocyte cholinesterase activity with time and with an injection of 2-PAM antitoxin in poisoning with the insecticide malathion, O,O-diethyl S-(1,2-dicarbethoxyethyl) dithiophosphate, was studied by the standard electrometric method. The injection of the antitoxin 2-PAM within 15 min after poisoning improved breathing and general condition of the patient and increased erythrocyte cholinesterase activity from 12 to 24%, as compared with the normal

Card

1/2

UDC: 616.89-008.441.44-099[:615.777[595.7][:547-118.5]:[616.153:  
:616.155.1]-008.9[577.153.9.084]

ACC NR: AP8033190

activity, but had practically no effect on the activity of the plasma cholinesterase. The electrometric data are given in the figure

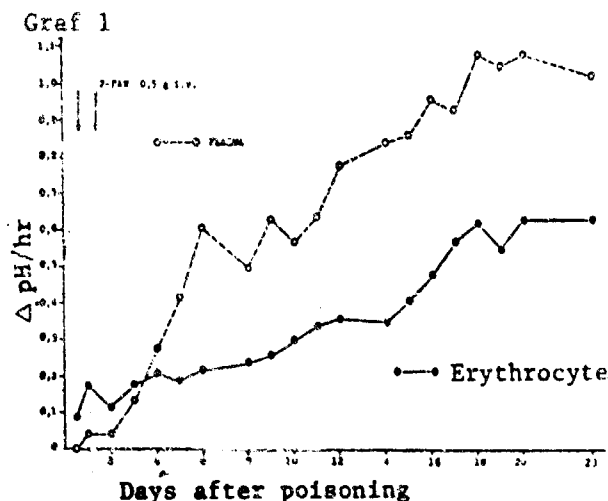


Fig. 1. Change in the activity of plasma and erythrocyte cholinesterase in treatment of malathion poisoning

The results confirmed the importance of the electrometric measurement of cholinesterase activity in the differential diagnosis of poisoning with alkyl phosphates. [WA-50; CBE No. 38] [PS]

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 013

Card 2/2

ACC NR: AP8037235

SOURCE CODE: GE/9024/68/362/03-/0205/0209

AUTHOR: Kasperek, F.

ORG: Institute of Inorganic Chemistry, Palacky University, Olomouc (Ustav anorganické chemie, Palacky-Universität)

TITLE: P-Acylhypophosphites

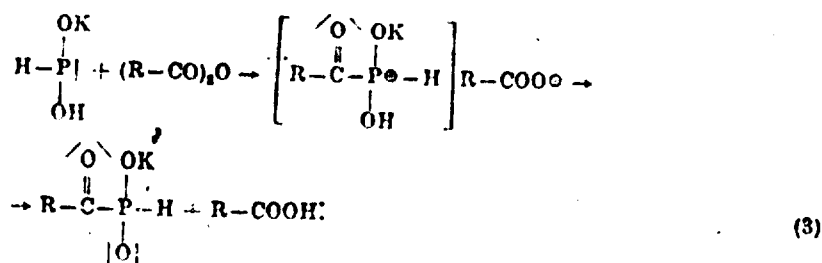
SOURCE: Zeitschrift für Anorganische und Allgemeine Chemie, v. 362, no. 3-4

TOPIC TAGS: phosphorous acid, chemical stability, phosphite, hypophosphite

ABSTRACT: Potassium P-acetyl-, P-propionyl-, and P-butyrylhypophosphites (I-III) were synthesized by adding  $\text{Ac}_2\text{O}$ ,  $(\text{EtCO})_2\text{O}$ , and  $(\text{PrCO})_2\text{O}$  to K hypophosphite in aliphatic acid medium in a stream of inert gas and heating above  $100^\circ\text{C}$ . P-Acylhypophosphites are very stable, and their P-C bonds are especially stable. Aqueous solutions of the free acylhypophosphorous acids from I-III were obtained by cation exchange with Dowex 5C W. In attempts to isolate the anhydrous acids, redox reactions

Card 1/2

ACC NR: AP8037235



and partial hydrolysis occurred at acid concentrations greater than 50%. The acid constants are  $\text{pK}_\text{H}(\text{HPO}_2\text{Ac}) = 1.93$ ,  $\text{pK}_\text{H}(\text{HPO}_2\text{COEt}) = 2.16$ , and  $\text{pK}_\text{H}(\text{HPO}_2\text{COPr}) = 2.22$ . Water-soluble, colorless salts of almost all metals may be obtained by neutralization of the acid solutions or by double decomposition. Orig. art. has: 2 figures and 1 table. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 13Jul67/ ORIG REF: 003/ OTH REF: 001/  
SOV REF: 002

Card 2/2

ACC NR: AP8037907

SOURCE CODE: UR/0020/68/183/001/0134/0136

AUTHOR: Khromov-Borisov, N. V.; Indenbom, M. L.; Danilov, A. F.

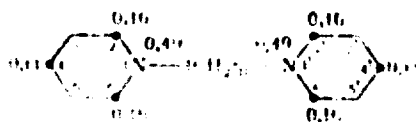
ORG: Institute of Experimental Medicine, Academy of Medical Sciences SSSR (Institut eksperimental'noy meditsiny Akademii meditsinskikh nauk SSSR)

TITLE: Tetra-, nona-, and decamethylene-bis-pyridinium myorelaxants. Distribution of  $\pi$ -electron density and relative curareform activity

SOURCE: AN SSSR. Doklady, v. 183, no. 1, 1968, 134-136

TOPIC TAGS: muscle relaxant, electron density, pyridine derivative, coulomb interaction, choline

ABSTRACT: The relative curareform activity of the title compounds was calculated on the basis of the values of the  $\pi$ -electron density on various atoms of the pyridinium cations. The distribution of the positive charges in the polymethylene-bis-pyridinium cation is shown in the structural formula. Structures in which the positive charges



Card 1/3

UDC: 547.821+539.194+612.815.2



ACC NR: AP8037907

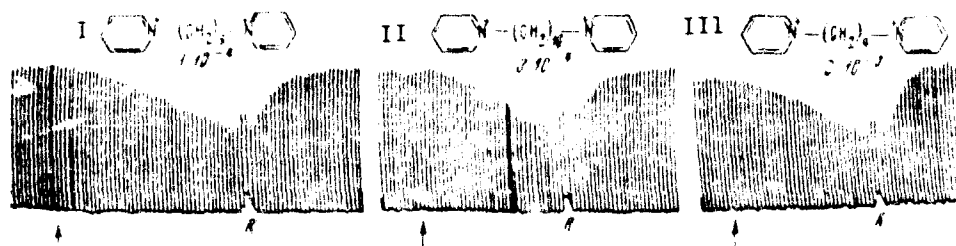
are at distances of 9, 10, and 16 atoms make possible the effective coulomb interaction of bis-pyridinium myorelaxants with choline-receptors. The summational positive charge ( $\Sigma\delta+$ ) of tetra-, nona-, and decamethylene-bis-pyridinium cations which are capable of effective interaction with a choline-receptor at two points simultaneously are as follows.

$$\text{For } n = 4 \quad \Sigma\delta+ = 2 \cdot 0,11 = 0,22.$$

$$\text{For } n = 9 \quad \Sigma\delta+ = 4 \cdot (0,49 + 0,16) + 2 \cdot 0,49 = 3,58.$$

$$\text{For } n = 10 \quad \Sigma\delta+ = 2 \cdot 0,49 + 2 \cdot 0,11 = 1,2$$

The values of blocking molar concentrations ( $EK_{50}$ ) of the title compounds on a rat phrenico-diaphragmatic preparation are: nona (I) 0.0001; deca (II) 0.0003; and tetra (III) 0.002 (see Figure 1, where the arrow indicates the moment of adding the compound to the bath, and R is the solution scheme). The experimentally determined relative activities of I—III



Card 2/3

ACC NR: AP8037907

(inversely proportional to the values of  $EK_{50}$ ) are in agreement with the calculated values and are: I:II:III = 1:0.33: 0.05. Compounds I (58.5% yield, mp 123—127°C), II (61% yield, mp 193—195°C), and III (91% yield, mp 242—243.5°C) were prepared by allowing pyridine to stand with the corresponding dibromoalkanes in MeOH for several weeks at 20°C. The paper was presented by Academician Ye. M. Kreps on 20 May 68. Orig. art. has: 1 figure. [WA-50; CBE No. 38] [FT]

SUB CODE: 06/ SUBM DATE: 16Apr68/ ORIG REF: 004/ OT REF: 001

Card 1/1

ACC NR: AP8035702

SOURCE CODE: UR/0394/68/006/010/0036/0038

AUTHOR: Korolev, L. I.; Starosel'skiy, Ya. Yu.

ORG: NIUIF

TITLE: Role of herbicides in the utilization of nutrient substances of fertilizers by plants

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 10, 1966, 36-38

TOPIC TAGS: weed killer, agronomy, nitrogen fertilizer

ABSTRACT: The action of 2,4-D on oats was studied under ordinary field conditions with watering and nitrogen supplementation with  $N_{30}$  and without them. On plots without 2,4-D, watering and N supplementation increased grain yield by 8.7 centners per hectare. Under ordinary field conditions (without watering and supplementation), the increase in yield with 2,4-D amounted to 3.5 centners per hectare. When introduced after watering and N supplementation, 2,4-D increased the yield by 13.8 centners per hectare. When 2,4-D was introduced after fertilizers (NP, NPK, manure), the crops were almost completely freed of weeds, owing to which the oat yield increased by 3.8 centners per hectare. The consumption of nutrient substances in the experiment with 2,4-D amounted to 310 kg/ha:

Card 1/2

UDC: 632.954:631.811

ACC NR: AP8035702

144 kg/ha from the soil and 166 kg/ha from fertilizers. In the experiment without 2,4-D, the consumption of nutrient substances by the plants was 299 kg/ha: 137 kg/ha from the soil and 162 kg/ha from fertilizers. Orig. art. has: 3 figures. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUM DATE: none

Card 2/2

ACC NR: AP8033910

SOURCE CODE: UR/0020/68/182/004/0838/0841

AUTHOR: Kost, A. N.; Sagitullin, R. S.; Gorbunov, V. I.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Formation of  $\alpha$ -carbolines and pyrimido[1,2-a]indoles during condensation of 2-aminoindoles with 1,3-diketones

SOURCE: AN SSSR. Doklady, v. 182, no. 4, 1968, 838-841

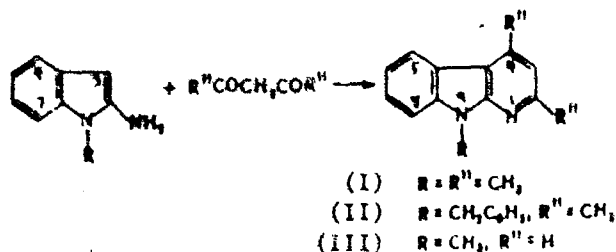
TOPIC TAGS: heterocyclic nitrogen compound, condensation reaction, cyclization/indole

ABSTRACT: 2,4,9-Trimethyl- $\alpha$ -carboline (I) (100% yield, mp 110—111°C) was synthesized by boiling 1-methyl-2-aminoindole and acetylacetone for 2—3 hr in pyridine in a stream of inert gas. 2,4-Dimethyl-9-benzyl- $\alpha$ -carboline (II) (64% yield, mp 120.5—121.5°C) was similarly synthesized from 1-benzyl-2-aminoindole and acetylacetone, and 9-methyl- $\alpha$ -carboline (III) (7% yield, mp 53°C) was prepared from 1-methyl-2-aminoindole and propanedial. Methyl (V—VII), methoxy (VIII and IX), chloro

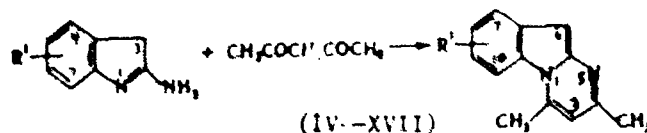
Cord 1/4

UDC: 547.75.233:547.83

ACC NR: AP8033910



(X and XI), bromo (XII—XIV), and nitro (XV—XVII) derivatives of yellow 2,4-dimethylpyrimido[1,2-a]indole (IV) was synthesized by allowing



Cord 2/4

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ACC NR: AP8033910

Table 1

No.	R	Yield	Mp
IV	H	88	111,5-112,5
V	7-CH <sub>3</sub>	92,4	93-95
VI	8-CH <sub>3</sub>	91,8	114-116
VII	9-CH <sub>3</sub>	90,2	105-110
VIII	8-OCH <sub>3</sub>	93,4	132-133
IX	9-OCH <sub>3</sub>	84	20-91
X	8-Cl	92,9	154-156
XI	9-Cl	91,2	164,2-165
XII	7-Br	87,7	155-156
XIII	8-Br	90	171-172
XIV	9-Br	89,4	164-165
XV	7-NO <sub>2</sub>	91,4	247-248
XVI	8-NO <sub>2</sub>	83,2	236-239
XVII	9-NO <sub>2</sub>	84,5	206-207

Card 3/4

ACC NR: AP8033910

4-,5-,6-, and 7-substituted 2-aminoindoles to react with acetylacetone.  
The paper was presented by Academician A. N. Nesmeyanov, 28 Mar 68.  
Orig. art. has: 2 tables. [WA-50; CBE No. 38][FI]

SUB CODE: 07/ SUBM DATE: 12Mar68/ ORIG REF: 003/ OTH REF: 003

Card 4/4

ACC NR: AP8037905

SOURCE CODE: UR/0020/68/183/001/0112/0115

AUTHOR: Kost, A. N.; Yudin, L. G.; Chernyshova, N. R.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyi universitet)

TITLE: Simultaneous formation of pyrrole and pyridine rings in the Fischer synthesis (new synthesis of Alpha-carbolines)

SOURCE: AN SSSR. Doklady, v. 183, no. 1, 1968, 112-115

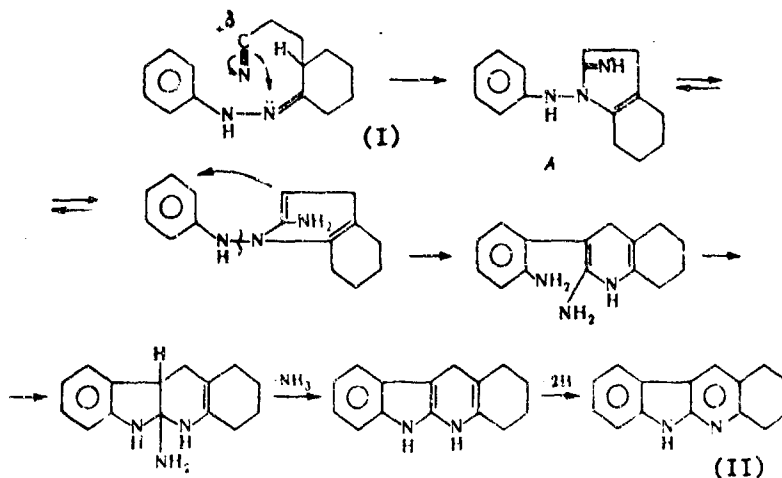
TOPIC TAGS: organic azole compound, pyridine derivative, pyrrole, heterocyclic nitrogen compound, carboline

ABSTRACT: 2'-Cyanoethyl-2-cyclohexanone (I) (30 % yield, bp<sub>13</sub> 150 to 152°C) was prepared by boiling CH<sub>2</sub>:CHCN and 1-hexamethyleneimino-1-cyclohexene in dioxane for 19 hr. 2,3-Tetramethylene- $\alpha$ -carboline (II) (21.5 % yield, mp 245-246°C) was synthesized by heating I and phenylhydrazine for 3 hr at 100°C and refluxing the resulting hydrazone with HOAc for 10 hr. The monoacetyl derivative of II (III) (80 % yield, mp 152-153°C) was obtained by boiling II and Ac<sub>2</sub>O for 1 hr. 1-(5,6-Tetramethylene-2-pyridyl)-1,2,3-benzotriazole (IV) (25.5 % yield, mp 129 to

Card 1/3

UDC: 547.759

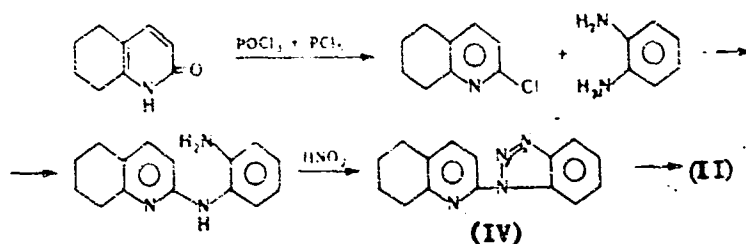
ACC NR: AP8037905



130°C) was synthesized by adding (for 40 min) PCl<sub>5</sub> to 5,6-tetramethylene-2-pyridone and POCl<sub>3</sub> at 120°C and heating for 45 min at 140°C, with subsequent heating of the resulting 5,6-tetramethylene-2-chloropyridine (70 % yield, bp<sub>8</sub> 126-127°C) with o-phenylenediamine for 6 hr at 40 mm

Card 2/3

ACC NR: AP8037905



and 140—150°C and treating with  $\text{NaNO}_2$ . Compound II (44.5 % yield) was also formed when IV and  $\text{H}_3\text{PO}_4$  were heated on a flame. Presented by Academician A. N. Nesmeyanov, 14 May 68. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 03Apr68/ ORIG REF: 003/ OTH REF: 004

Card 3/3

ACC NR: AP8035537

SOURCE CODE: UR/0079/68/038/010/2277/2281

AUTHOR: Kovalev, L. S.; Razumova, N. A.; Petrov, A. A.

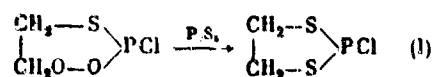
ORG: Leningrad Technological Institute im. Lensovet (Leningradskiy tekhnologicheskii institut)

TITLE: Heterocyclic organophosphorus compounds. XVIII. Condensation of dithioethyleneglycolphosphorous acid chloride with some conjugated systems

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2277-2281

TOPIC TAGS: heterocyclic sulfur compound, heterocyclic oxygen compound, heterocyclic phosphorus compound

ABSTRACT: Dithioethyleneglycolphosphorous acid chloride (I) (58% yield) was prepared as shown. 1-(2-Chloroethylthio) phospholene sulfide (II)



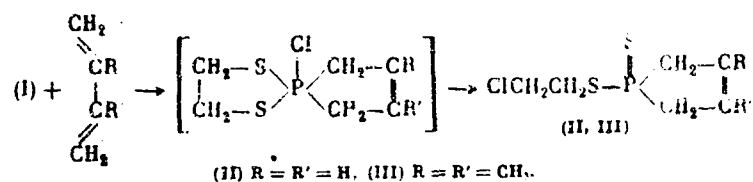
(bp<sub>0.5</sub> 103°C, d<sub>4</sub><sup>20</sup> 1.3204, n<sub>D</sub><sup>20</sup> 1.6005) and 1-(2-chloroethylthio)-3,4-dimethylphospholene sulfide (III) bp<sub>0.5</sub> 130°C, d<sub>4</sub><sup>20</sup> 1.2530, n<sub>D</sub><sup>20</sup> 1.6030)

Card 1/3

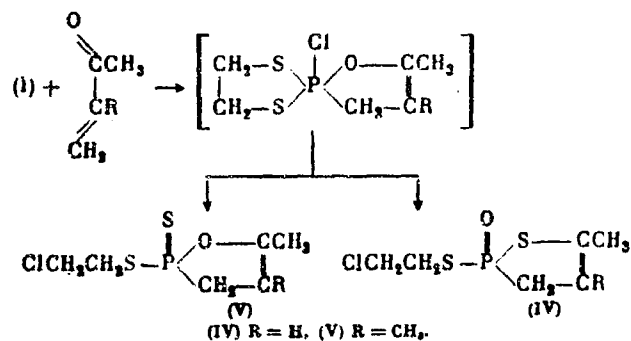
UDC: 547.341

ACC NR: AP8035537

were synthesized in 40—45% yield by heating I and the corresponding dienes in sealed tubes at 135°C for 8 hr. 1-(2-Chloroethylthio)-3-



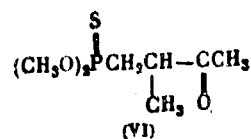
methyl-3-isothiophospholene oxide (IV) (bp<sub>0.5</sub> 130°C, d<sub>4</sub><sup>20</sup> 1.3342, n<sub>D</sub><sup>20</sup> 1.5818) and 1-(2-chloroethylthio)-3-methyl-3-isooxaphospholene sulfide (V) (bp<sub>0.5</sub> 114—115°C, d<sub>4</sub><sup>20</sup> 1.2952, n<sub>D</sub><sup>20</sup> 1.5792) were synthesized as shown with heating for 3—4 hr in a sealed tube at 80—90°C. 4-Dimethylthio-



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ACC NR: AP8035537

phosphono-3-methyl-2-butanone (VI) (bp<sub>0.5</sub> 75°C, d<sub>4</sub><sup>20</sup> 1.1510, n<sub>D</sub><sup>20</sup> 1.4915) was synthesized by treating V with 5% KOH in MeOH. The structures of



II—VI were confirmed by IR and NMR spectroscopy. Orig. art. has: 2 figures. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 10Jul67/ ORIG REF: 006

ACC NR: AP8033712

SOURCE CODE: UR/0316/68/000/003/0062/0065

AUTHOR: Kuliyev A. M.; Aliyev, A. B.

ORG: Institute of the Chemistry of Additives, AN AzerbSSR (Institut khimii prisadok AN AzerbSSR)

TITLE: Aminomethylation of 2,5-dialkylbenzylmercaptans

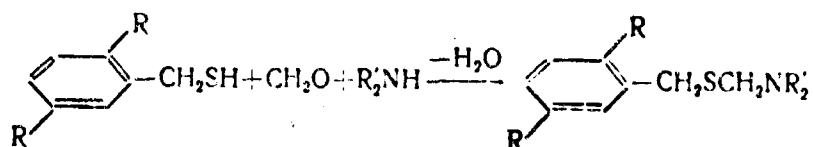
SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 3, 1968, 62-65

TOPIC TAGS: mercaptan, aromatic amine, organic sulfur compound, herbicide, weed killer

ABSTRACT: Earlier studies revealed that some of aminomethyl derivatives of mercaptans have herbicidal and pharmacological properties. In search for new biologically active compounds, a series of new aminomethyl derivatives of 2,5-dialkylbenzylmercaptans was synthesized by the condensation of the mercaptans with formaldehyde and sec.-amines in aqueous solutions at 70—80°C:

Card 1/3

ACC NR: AP8033712



R=CH<sub>3</sub>, NR'<sub>2</sub>=N(CH<sub>3</sub>)<sub>2</sub> (I);

R=CH<sub>3</sub>, NR'<sub>2</sub>=N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub> (II);

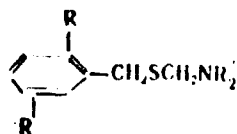
R=CH<sub>3</sub>, NR'<sub>2</sub>=N<⬢> (III);

R=C<sub>2</sub>H<sub>5</sub>, NR'<sub>2</sub>=N(CH<sub>3</sub>)<sub>2</sub> (IV);

R=C<sub>2</sub>H<sub>5</sub>, NR'<sub>2</sub>=N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub> (V);

R=C<sub>2</sub>H<sub>5</sub>, NR'<sub>2</sub>=N<⬢> (VI).

The passage of dry HCl through solutions of compounds III and VI in





No.	R	NR' <sub>2</sub>	Yield %	Bp, °C (mm Hg)	n <sub>D</sub> <sup>20</sup>	n <sub>D</sub> <sup>25</sup>
I	CH <sub>3</sub>	N(CH <sub>3</sub> ) <sub>2</sub>	81	97-98/0.5	0.9955	1.5170

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ACC NR: AP8033712

II	CH <sub>3</sub>	N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	86	115-116/0,7	0,9773	1,5374
III	CH <sub>3</sub>		85	131-132/0,4 Mp 52-53	-	-
IV	C <sub>2</sub> H <sub>5</sub>	N(CH <sub>3</sub> ) <sub>2</sub>	85	108-109/0,4	0,9794	1,5394
V	C <sub>2</sub> H <sub>5</sub>	N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	82	134-135/0,7	0,9650	1,5324
VI	C <sub>2</sub> H <sub>5</sub>		84	142-143/0,4	1,0052	1,5475

\* Hydrochloride, mp. 171—171.5°.

\*\* Hydrochloride, mp. 138—139°.

benzene gave the corresponding hydrochlorides. The compounds synthesized are characterized in the table. [WA-50; CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 28Feb67/ ORIG REF: 004/ OTH REF: 004

Card 3/3

ACC NR: AP8035704

SOURCE CODE: UR/0394/68/006/010/0043/0045

AUTHOR: Lobanov, V. Ye. (Member of L'vov experimental station);  
Poddubnaya, L. P. (Member of L'vov experimental station)

ORG: L'vov Experimental Station (L'vovskaya opytnaya stantsiya)

TITLE: The effect of Eptam, Tillam, and Pyramine on the content of nutrient substances in the soil and on the development of microflora

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 10, 1968, 43-45

TOPIC TAGS: weed killer, soil bacteriology, soil type

ABSTRACT: The effect of Eptam, Tillam, and Pyramine (introduced before sowing) on available N, P, and K, on the amount of soil microorganisms, and on weed infestation of sugar beet was studied from 1965 to 1967 in leached, rich, moderately loamy black earth with 4.5—5.5% humus. The general increase in available N, P, and K produced by application of the weed killers (4—6 kg/ha) is probably a result of the elimination of the weeds and activation of the microorganisms as they adapt to the herbicides. After application of the herbicides, nitrifiers and ammonifiers participating in the conversion of N in the soil were found in a greater amount than in the control experiment. A slight decrease in the number of nitrifiers in the experiments with Eptam and Tillam was observed

Card 1/2

ACC NR: AP8035704

only in 1967. The herbicides had little effect on denitrifying and cellulose-decomposing bacteria. Inhibition of *Clostridium pasteurianum* was observed in 1965. Bacteria which decompose organophosphorus compounds developed 30---40% more intensively after herbicide application. Eptam destroyed 70---80% of the monocotyledonous weeds and 20---25% of the dicotyledonous weeds. Pyramine was ineffective, and Tillam destroyed 45---50% of the monocotyledonous weeds, but was ineffective against dicotyledonous weeds. Orig. art. has: 3 tables.

[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 27Nov67/ ORIG REF: 002

Card 2/2

ACC NR: AP8033980

SOURCE CODE: GE/0075/68/000/005/0281/0285

AUTHOR: Loh, Kh. (Professor, Doctor)

ORG: none

TITLE: Pain-producing substances (algogens)

SOURCE: Zeitschrift fur militarmedizin, no. 5, 1968, 281-285

TOPIC TAGS: pain, biologic sabotage, limited war weapon

ABSTRACT: This article briefly discusses the physiology and pharmacology of pain, methods of measuring pain, development of toxicity criteria, algogenic plant and animal substances, naturally occurring polypeptides and histamine liberators, and synthetic forms of the above-named substances. The article concludes that NATO countries might employ algogens in limited warfare, biologic sabotage, or offensive weapons systems.

[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 19Apr68

Card 1/1

ACC NR: AP8037729

SOURCE CODE: UR/0073/68/034/011/1142/1144

AUTHOR: Lozinskiy, M. O.; Kudrya, T. N.; Yavorskiy, D. F.; Kiriyyenko, S. S.; Yakovleva, V. Ya. Pel'kis, P. S.

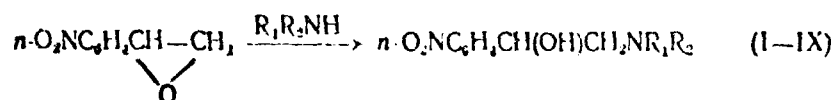
ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Reactions of p-nitrostyrene oxide with nucleophilic agents and phosphorus trichloride

SOURCE: Ukrainskiy khimicheskoy zhurnal, v. 34, no. 11, 1968, 1142-1144

TOPIC TAGS: aromatic nitro compound, fungicide, phosphorous acid, spermicide, organic phosphorus insecticide

ABSTRACT: 1-(p-Nitrophenyl)-2-(p-arylsulfamido)ethanols (I-IV) were synthesized by heating p-nitrostyrene oxide, p-arylsulfamide, and Me<sub>4</sub>NOH at 100°C for 8-10 hr. 1-(p-Nitrophenyl)-2-ethyleneiminoethanol



Card 1/3

UDC: 547.435+547.437+547.26'118

ACC NR: AP8037729

Table 1  
p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CH-CH<sub>2</sub>R  
OH

No.	R	Yield, %	Mp, °C
I	-HNSO <sub>2</sub> C <sub>6</sub> H <sub>4</sub>	50	114-116*
II	-HNSO <sub>2</sub> C <sub>6</sub> H <sub>4</sub> CH <sub>2</sub> -p	27	154-157
III	-NHNSO <sub>2</sub> C <sub>6</sub> H <sub>4</sub> Cl-p	25	132-134
IV	-N(SO <sub>2</sub> C <sub>6</sub> H <sub>4</sub> CH <sub>2</sub> -p) <sub>2</sub>	56	190-200
V	$\begin{array}{c} \diagup \text{CH}_3 \\ \text{N} \\ \diagdown \text{CH}_3 \end{array}$	31	103-106
VI	-N(CH <sub>2</sub> CH <sub>2</sub> OH) <sub>2</sub>	70	106-107
VII	-NHCOOC <sub>6</sub> H <sub>5</sub>	45	128
VIII	-NHNHCOCH <sub>2</sub> OC <sub>6</sub> H <sub>4</sub> Cl-2,4	30	142-143
IX	-NHNHCOCH <sub>2</sub> OC <sub>6</sub> H <sub>4</sub> Cl-2,4,5	57	172-174

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ACC NR: AP8037729

(V) was prepared by adding ethyleneimine to p-nitrostyrene oxide in  $\text{CHCl}_3$  and allowing the mixture to stand at room temperature for 4 days. 1-(p-Nitrophenyl)-2-bis(2-hydroxyethyl)aminoethanol (VI) was prepared by adding diethanolamine to p-nitrostyrene oxide in EtOH and heating at  $100^\circ\text{C}$  for 25 hr. 2-Benzoylhydrazino-1-(p-nitrophenyl)-1-ethanol (VII) was obtained by adding p-nitrostyrene oxide in EtOH to Bz hydrazide in EtOH and refluxing for 8 hr. 2-(2,4-Dichlorophenoxyacetylhydrazino-1-(p-nitrophenyl)-1-ethanol (VIII) was prepared by heating 2,4-dichlorophenoxyacetyl hydrazide and p-nitrostyrene oxide at  $40-50^\circ\text{C}$  for 4 hr. Compound IX was similarly prepared. Colorless, crystalline I-IX are soluble in EtOH, dioxane,  $\text{Me}_2\text{CO}$ ,  $(\text{CH}_2\text{Cl})_2$ , and  $\text{CHCl}_3$  and are insoluble in  $\text{H}_2\text{O}$  and  $\text{HCONH}_2$ . Viscous p-nitrophenyl( $\alpha$ -chloro)ethylphosphorous acid dichloride  $\text{p-NO}_2\text{C}_6\text{H}_4\text{CH}(\text{Cl})\text{CH}_2\text{OPCl}_2$  (X) (and possibly  $\text{p-NO}_2\text{C}_6\text{H}_4\text{CH}(\text{OPCl}_2)\text{CH}_2\text{Cl}$ ) was (probably) obtained by heating 1 mole of p-nitrostyrene oxide with 5 moles of  $\text{PCl}_3$  on a water bath for 3 hr. Viscous Me, Et, and iso-Pr esters of X were obtained from the reaction of X with alkanols. These esters display weak insecticidal and fungicidal activity. Compounds V (5% solution) and IV (2.5% solution) display a noticeable spermicidal effect. Orig. art. has: 1 table.

[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 18Apr67/ ORIG REF: 003/ OTH REF: 004

Card 3/3

ACC NR: AP8035541

SOURCE CODE: UR/0079/68/038/010/2325/2327

AUTHOR: Lukavich, E.; Voronkov, M. G.

ORG: Institute of Organic Synthesis, Academy of Sciences LatSSR  
(Institut organicheskogo sinteza Akademii nauk LatSSR)

TITLE: Nitrogen-containing organosilicon compounds. XIII. Organosilicon derivatives of choline

SOURCE: Zhurnal obshchei khimii, v. 38, no. 10, 1968, 2325-2327

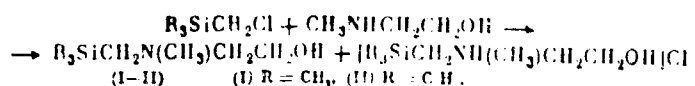
TOPIC TAGS: organosilicon compound, halogenated organic compound, aliphatic alcohol, aminoalcohol, choline derivative, biologically active compound

ABSTRACT: In a search for new biologically active compounds, a series of organosilicon derivatives of choline, acetylcholine, "chlorocholine", and "iodocholine" was synthesized and their physiological activity studied. The reaction of trialkylchloromethylsilanes with (N-methyl-amino) ethanol in 1-butanol in the presence of triethylamine with heating for 48 hr yielded the substituted aminoalcohols I and II:

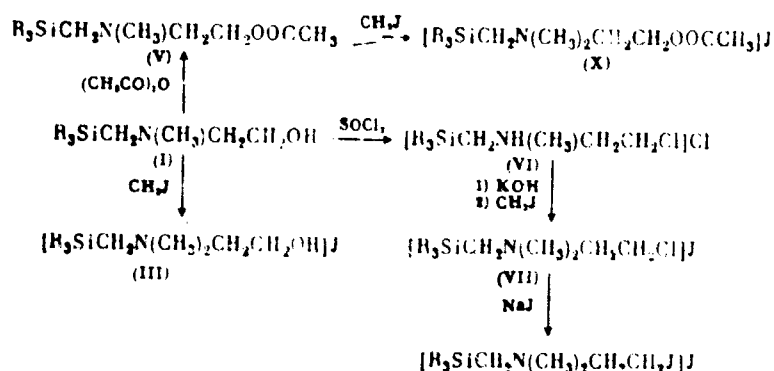
Card 1/3

UDC: 547.245

ACC NR: AP8035541



Compounds I and II were treated with methyl iodide in ether to form the choline derivatives III and IV, respectively, which are characterized in the table below. The reaction of I with acetic anhydride gave the acetyl derivative V, which was converted into X by treatment with methyl iodide:



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ACC NR: AP8035541

The treatment of I with thionyl chloride in chloroform gave VI, which was treated with methyl iodide to form VII. The latter compound was heated for 56 hrs with NaI in alcohol to form compound IX. Composition and mp of compounds III -- X are given in the table.

N	Compound	Mp
III	$[RCH_2)_3SiCH_2N(CH_3)_2CH_2CH_2OH]$	175 - 175.5°
IV	$[C_2H_5)_3SiCH_2N(CH_3)_2CH_2CH_2OH]$	168.5 - 169°
VI	$[RCH_2)_3SiCH_2NH(CH_3)CH_2CH_2Cl]$	179 - 179.5°
VII	$[RCH_2)_3SiCH_2N(CH_3)_2CH_2CH_2Cl]$	162.5 - 163°
VIII	$[CH_2)_3SiCH_2N(CH_3)_2CH_2CH_2Cl]$	198.5 - 199°
IX	$[RCH_2)_3SiCH_2N(CH_3)_2CH_2CH_2I]$	200 - 201°
X	$[RCH_2)_3SiCH_2N(CH_3)_2CH_2CH_2OOCCH_3]$	157.5 - 158°

In experiments on the frog *musculus rectus abdominis*, compounds III, IV, VI -- X showed parasympatholytic activity ( $EC_{50}$  varied between  $10^{-5}$  and  $10^{-6}$ ). [QA-50 CRF No. 38] [PS]

SUR CODE: 07/ SURM DATE: 16Oct67/ ORIG REF: 002

Card 3/3

ACC NR: AP8033711

SOURCE CODE: UR/0316/68/000/003/0007/0011

AUTHOR: Mamedov, I. M.; Ismailzade, I. G.; Mamedov, Sh. M.; Mamedov, E. Sh.

ORG: Institute of Theoretical Problems of Chemical Technology, AN AzerbSSR (Institut teoreticheskikh problem khimicheskoy tekhnologii AN AzerbSSR)

TITLE: Infrared absorption spectra of some monoesters of phenyl-ethylene glycol

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 3, 1968, 7-11

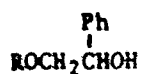
TOPIC TAGS: organic insecticide, ethylene glycol, ir absorption / biologically active compound

ABSTRACT: 1-Phenyl-2-alkoxyethanols (I—XI) were prepared by allowing alkanols to react with styrene oxide in the presence of alkyl borofluoride to study the relationship between their structure and their biological activity. The insecticidal activity of I—XI increases in proportion to the weight of the alkanol radical up to  $C_8-C_9$ , but beginning with  $C_{10}$  it gradually decreases. Studies of the IR spectra of I—XI revealed no connection between the degree of biological

Card 1/3

ACC NR: AP8033711

Table 1



No.	R	Bp, °C	% Yield	$n_D^{20}$	$d_4^{20}$
I	$\text{CH}_3[3]$	88-89	82	1.5208	1.0385
II	$\text{C}_2\text{H}_5[4]$	90-91	51	1.5118	1.0378
III	$n\text{-C}_3\text{H}_7$	100-101	54	1.5048	1.0125
IV	$n\text{-C}_4\text{H}_9$	123-124	56	1.4996	0.9949
V	$\text{iso-C}_4\text{H}_9$	108-109	30	1.4985	0.9940
VI	$n\text{-C}_5\text{H}_{11}$	128-129	52	1.4988	0.9840
VII	$\text{iso-C}_5\text{H}_{11}$	125-126	60	1.4962	0.9782
VIII	$n\text{-C}_6\text{H}_{13}$	130-131	45	1.4961	0.9733

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ACC NR: AP8033711

Table 1. (Cont.)

LX	n-C <sub>7</sub> H <sub>15</sub>	145-146	43	1.4932	0.9651
X	n-C <sub>8</sub> H <sub>17</sub>	153-154	40	1.4920	0.9550
XI	n-C <sub>9</sub> H <sub>19</sub>	167-168	38	1.4924	0.9534

activity and the spectral parameters of any structural group. The activity of I-XI is possibly related to the characteristic distribution of electron density in their molecules. Orig. art. has: 1 table and 1 figure. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 12May67/ ORIG REF: 007/ OTH REF: 002

Card 3/3

ACC NR: AP8035547

SOURCE CODE: UR/0079/68/038/010/2343/2344

AUTHOR: Martynov, I. V.; Kruglyak, Yu. L.; Malekin, S. I.

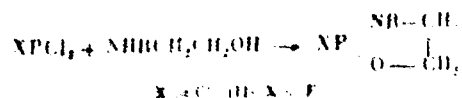
ORG: none

TITLE: Preparation of 2-halogenated N-alkyl-1,3,2-oxazaphospholanes

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2343-2344

TOPIC TAGS: organic phosphorus compound, organic nitrogen compound, halogenated organic compound, phospholane derivative

ABSTRACT: 2-Chloro-3-methyl-1,3,2-oxazaphospholane (Ia), bp 57-58°C (2 mm),  $d_4^{20}$  1.2549; 2-fluoro-3-methyl-1,3,2-oxazaphospholane (IIa), bp 52-53°C (50 mm),  $d_4^{20}$  1.1750; and 2-fluoro-3-ethyl-1,3,2-oxazaphospholane (IIb), bp 70-71°C (50 mm),  $d_4^{20}$  1.1400 were obtained in a 40-60% yield by the reaction:

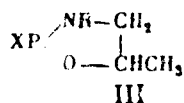


Card 1/2

UDC: 547.26'118

ACC NR: AP8035547

The reaction takes place in benzene solution at 10—15°C in the presence of two moles of triethylamine.  $\beta$ -Aminoalcohols also reacted similarly to form compounds III.



	X	R	Bp (mm)	$d_4^{20}$
IIIa	Cl	CH <sub>3</sub>	62-62 (1)	1.1777
IIIb	Cl	C <sub>2</sub> H <sub>5</sub>	55-57 (0.02)	1.1555
IIIc	F	CH <sub>3</sub>	57-58 (50)	1.1099
IIId	F	C <sub>2</sub> H <sub>5</sub>	89-91 (50)	1.0742

which are characterized in the table.

[WA-50; CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 11Mar68/ ORIG REF: 001/ OTH REF: 003

Cord 2/2

ACC NR: AP8035544

SOURCE CODE: UR/0079/68/038/010/2341/2341

AUTHOR: Nifant'yev, E. Ye.; Petrova, I. M.

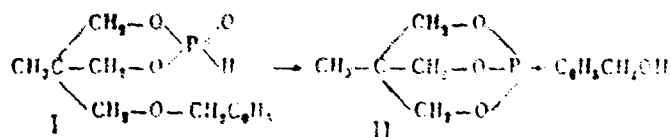
ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Preparation of neutral metriol phosphite from acid phosphites

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2341

TOPIC TAGS: organic phosphorus compound, phosphorous acid derivative, phosphite ester, phosphorous acid

ABSTRACT: The neutral metriol phosphite (II) mp 96—97°C was obtained in a 52% yield by heating compound I at 250—260°C and 170 mm.



Oxidation of II gave the earlier reported metriol phosphate.

[WA-50; CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 07Mar68

Cord 1/1

UDC: 547.26'118

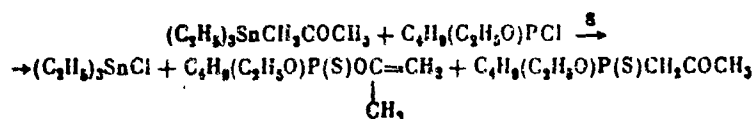


SOURCE CODE: UR/0079/68/038/010/2345/2345

ORG: none

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2345

**ABSTRACT:** The title reaction, performed by adding ethyl butylchlorophosphonite to triethylstannylacetone in ether at 0°C, was studied for the formation of O- and C-isomers. The reaction yielded a mixture of O- and C-isomers of ethyl butylacetonylthiophosphinate (C-isomer, 40% yield, bp<sub>0.02</sub> 136°C, n<sub>D</sub><sup>20</sup> 1.4915, d<sub>4</sub><sup>20</sup> 1.0380). The reaction of



UDC: 547.241

diphenyliodophosphine with triethylstannylacetone yielded only diphenylacetonylphosphine (45% yield, bp<sub>0.03</sub> 138°C, n<sub>D</sub><sup>20</sup> 1.6123, d<sub>4</sub><sup>20</sup> 1.1260).  
[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 09Apr68/ ORIG REF: 002/ OTH REF: 001

ACC NR: AT8034117

SOURCE CODE: UR/9110/66/000/004/0082/0085

AUTHOR: Omarov, Sh. M.; Gadzhiyev, G. Yu.; Alekperov, R. G.

ORG: Azerbaydzhan State University im. S. M. Kirov (Azerbaydzhanskiy gosudarstvennyy universitet)

TITLE: Condensation of phenol with dichloroethane and  $\beta, \beta'$ -dichlorodiethyl ether (Chlorex)

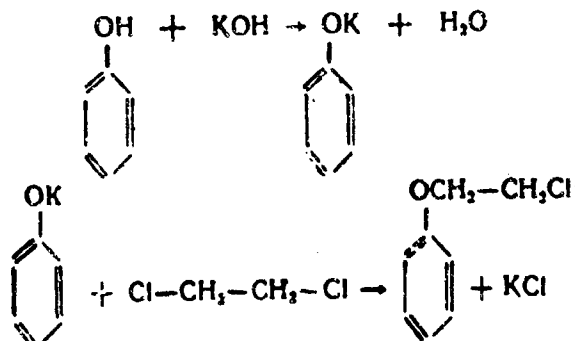
SOURCE: Baku. Azerbaydzhanskiy universitet. Uchenyye zapiski. Seriya khimicheskikh nauk, no. 4, 1966, 82-85

TOPIC TAGS: phenol derivative, aromatic ether, pesticide / biologically active compound

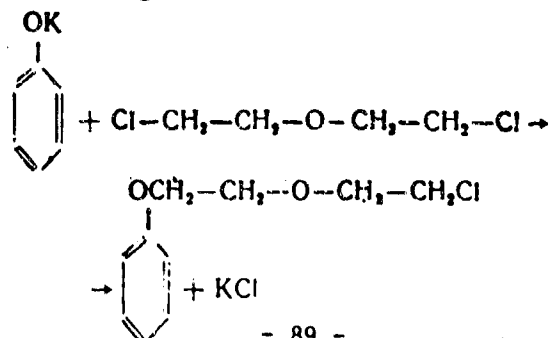
ABSTRACT: Some phenol derivatives of the fumigant pesticides 1,2-dichloroethane and Chlorex were synthesized to study their physiological action on plants.  $\beta$ -Chlorophenetole (I) (37.9% yield, bp 225°C,  $n_D^{20}$  1.5334,  $d_4^{20}$  1.1503) was synthesized by heating a mixture of 1 mole of phenol, 2 moles for 1,2-dichloroethane, and 1 mole KOH in 120 ml  $H_2O$  at 85°C for 26 hr.  $\beta$ -Ethoxychlorophenetole (II) (36.4% yield, bp 139°C,  $n_D^{20}$  1.5206,  $d_4^{20}$  1.1487) was synthesized by heating a mixture

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ACC NR: AT8034117



of 1 mole of phenol, 2 moles of  $\beta, \beta'$ -dichlorodiethyl ether (Chlorex), and 1 mole KOH in 120 ml  $H_2O$  at 120°C for 26 hr. Condensation of I



Card 2/3

ACC NR: AT8034117

and II with chloral in the presence of  $H_2SO_4$  yielded some analogs of DDT (unspecified) which are toxic to mollusks and certain parasites. The toxicity data will be published separately. Orig. art. has: 2 tables. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 001/ CTH REF: 004

Card 3/3

ACC NR: AP8038070

SOURCE CODE: UR/0289/68/000/004/0141/0142

AUTHOR: Polyakov, A. I.; Il'ina, L. A.

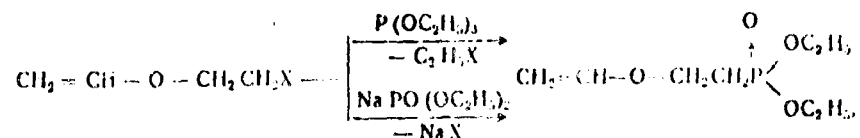
ORG: Irkutsk Institute of Organic Chemistry, Siberian Department, AN SSSR (Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR)

TITLE: Preparation of diethyl 2-vinyloxyethylphosphonate

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 4, 1968, 141-142

TOPIC TAGS: phosphonic acid, phosphonic acid derivative, aliphatic ester, phosphonate ester

ABSTRACT: Diethyl vinylethoxyphosphonate (I), bp 125—126°C, was obtained by the reactions:



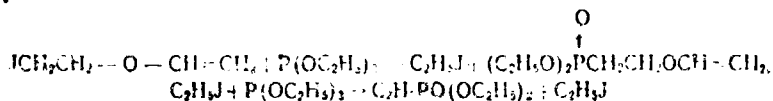
Card 1/3

UDC: 547.272.1

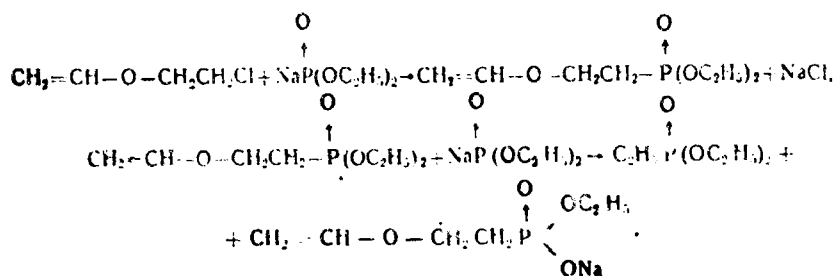
- 90 -

ACC NR: AP8038070

The reaction of 2-chloroethylvinyl ether with triethyl phosphite to form I proceeds in an autoclave at 170—190°C. An attempt to obtain I by the reaction of triethyl phosphite with 2-iodoethylvinyl ether was unsuccessful. The latter reaction proceeds at 100°C to form diethyl ethylphosphonate:



The reaction of II with diethyl sodium phosphite in toluene solution at 20°C on standing for 10 days yielded mainly diethyl ethylphosphonate, probably by the following mechanism:



Card 2/3

ACC NR: AP8038070

An attempt to isolate compound I from the reaction mixture was unsuccessful, probably due to a high rate of the second stage of the reaction.

[WA-50; CBE No. 38] [PS]

SUB CODE: 07/ SUBM DATE: 10May67/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AP8037582

SOURCE CODE: UR/0394/68/006/011/0045/0046

AUTHOR: Popov, N. T.; Ladonin, V. F.

ORG: VIUA

TITLE: Inactivation of some herbicides as a function of soil temperature

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 11, 1968, 45-46

TOPIC TAGS: weed killer, herbicide, chemical decomposition, soil chemistry

ABSTRACT: The effect of soil temperature on the inactivation of herbicides was studied. The soil specimens were mixed with herbicides in the following amounts (per 100 g soil): propazin 160 microgram, pyramine 5.35 mg, alipur 400 mg, and murbetol 153.6 mg. The specimens were kept for several months at temperatures ranging from -10 to 30°C. Every month samples of the herbicide treated soils were taken for analysis and for growing oat seedlings. The weight of the green mass of the seedlings was determined after 12 days of vegetation. The results are reported in table 1 and 2. The rate of herbicide decomposition in the soil increased with temperature. The increasing rate of herbicide

Card 1/3

UDC: 632.954

ACC NR: AP8037582

Table 1. The rate of inactivation of herbicides depending on soil temperature

Experiment with	temperature, °C	Wt. of green mass of oat, mg (in parent, % of the control)				
		After 1 mo	After 2 mo	After 3 mo	After 4 mo	After 5 mo
Control (without herbicide)	—	940(100)	930(100)	960(100)	970(100)	950(100)
Pyramine . .	-10-0	150(16)	160(17)	150(16)	190(20)	230(24)
	0-10	190(20)	230(25)	270(28)	310(32)	420(44)
	11-20	250(27)	290(30)	370(39)	480(50)	550(58)
	21-30	290(31)	340(37)	440(46)	560(58)	710(75)
Alipur . . .	-10-0	40(4)	60(7)	130(14)	200(21)	250(26)
	0-10	150(16)	200(22)	330(34)	510(53)	620(65)
	11-20	360(38)	480(52)	570(59)	610(63)	890(94)
	21-30	490(52)	610(66)	730(76)	800(83)	960(101)
Murbetol . .	-10-0	40(4)	90(10)	170(18)	190(20)	260(27)
	0-10	180(19)	240(26)	280(29)	390(40)	510(54)
	11-20	340(36)	560(60)	690(72)	780(80)	850(90)
	21-30	580(62)	740(80)	850(89)	910(94)	960(101)

Card 2/3

ACC NR: AP8037582

Table 2. The rate of propazin inactivation as a function of soil temperature

Temperature range, °C	Content of propazin, mg/100 g soil (% by the amount introduced)				
	After 1 mo	After 2 mo	After 3 mo	After 4 mo	After 5 mo
-10-0	149(93.1)	150(93.8)	148(92.5)	137(85.6)	129(80.6)
0-10	135(84.4)	128(80.0)	111(69.4)	95(59.4)	86(53.8)
11-20	130(81.3)	115(71.9)	96(60.0)	79(49.4)	67(41.9)
21-30	121(75.6)	98(61.3)	85(53.1)	74(46.3)	56(35.0)

inactivation under conditions of optimum microflora development indicate that microflora plays an important part in the decomposition of herbicides in the soil. The catalytic action of soil on the decomposition of herbicides is small, therefore they retain their phytotoxicity for a long time. [WA-50; CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 04Sep67/ ORIG REF: 002/ OTH REF: 005

Card 3/3

ACC NR: AP8033581

SOURCE CODE: UR/0062/68/000/010/2391/2392

AUTHOR: Pudovik, A. N.; Batyyeva, E. S.

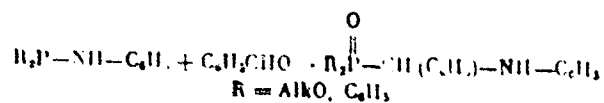
ORG: Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov, Academy of Sciences SSSR (Institut organicheskoy i fizicheskoy khimii Akademii nauk SSSR)

TITLE: Reactions of aminophosphines with  $\alpha,\beta$ -unsaturated aldehydes

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1968, 2391-2392

TOPIC TAGS: aromatic amine, aliphatic amine, phosphine oxide derivative, organic phosphorus compound

ABSTRACT: An earlier study revealed that the reactions of sec.-aminophosphines with saturated aldehydes and ketones proceed with the participation of the carbonyl group:

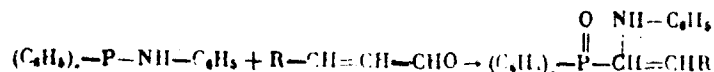


Card 1/3

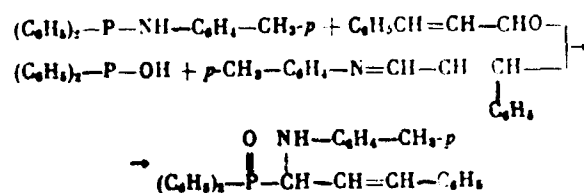
UDC: 542.91+661.718.1+547.38

ACC NR: AP8033581

With unsaturated aldehydes and ketones, aminophosphines reacted by the same mechanism as with the saturated aldehydes and ketones:



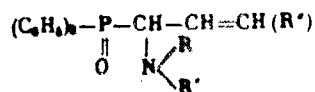
This was confirmed by IR spectra of the reaction products and by parallel synthesis:



The reactions of aminophosphines with unsaturated aldehydes and ketones

Card 2/3

ACC NR: AP8033581



R	R'	R''	Yield %	Mp, °C
H	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	73	80—81
H	C <sub>6</sub> H <sub>4</sub> -CH <sub>3</sub> -p	CH <sub>3</sub>	88	75—76
H	C <sub>6</sub> H <sub>4</sub> -CH <sub>3</sub> -p	C <sub>6</sub> H <sub>5</sub>	85	186
H	C <sub>6</sub> H <sub>4</sub> -s	H	80	129—130
H	C <sub>6</sub> H <sub>4</sub> -s	C <sub>6</sub> H <sub>5</sub>	91	106—107.5
C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	64	181

takes place in benzene solution at 50—80°C in a neutral medium (N or CO<sub>2</sub>). The reaction products, diaryl-α-[aryl(alkyl)amino]-γ-[aryl(alkyl)]-allylphosphine oxides are characterized in the table.

[WA-50: CBE No. 38][PS]

SUB CODE: 07/ SUBM DATE: 11Apr68/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AP8037906

SOURCE CODE: UR/0020/68/183/001/0126/0128

AUTHOR: Pudovik, A. N.; Batyyeva, E. S.; Pudovik, M. A.; Andreyeva, A. S.

ORG: Institute of Organic and Physical Chemistry im. A. Ye. Arpuzov,  
Academy of Sciences SSSR (Institut organicheskoy i fizicheskoy khimii  
Akademii nauk SSSP)

TITLE: Reaction of aminophosphines with  $\alpha$ ,  $\beta$ -unsaturated acids

SOURCE: AN SSSR. Doklady, v. 183, no. 1, 1968, 126-128

TOPIC TAGS: aromatic phosphorus compound, carbamic acid, phosphine  
oxide derivative

ABSTRACT:  $\beta$ -(N-Phenylcarbamoyl)ethyldiphenylphosphine oxide (I) and  $\beta$ -(N-phenylcarbamoyl)- $\beta$ -methylethyldiphenylphosphine oxide (II) were formed when  $\text{Ph}_2\text{PNHPh}$  was allowed to react with acrylic and methacrylic acids, respectively.  $\beta$ -(N-Tolylcarbamoyl)ethyldiphenylphosphine oxide (III) and  $\beta$ -(N-tolylcarbamoyl)- $\beta$ -methylethyldiphenylphosphine oxide (IV) were similarly obtained from tolylamindiphenylphosphine.  $\beta$ -(N-Phenylcarbamoyl)- $\alpha$ -phenylethyldiphenylphosphine oxide (V) was formed when  $\text{Ph}_2\text{PNHPh}$  and cinnamic acid were heated in benzene. Crystalline I-V

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UDC: 547.341'139.81+547.391

ACC NR: AP8037906

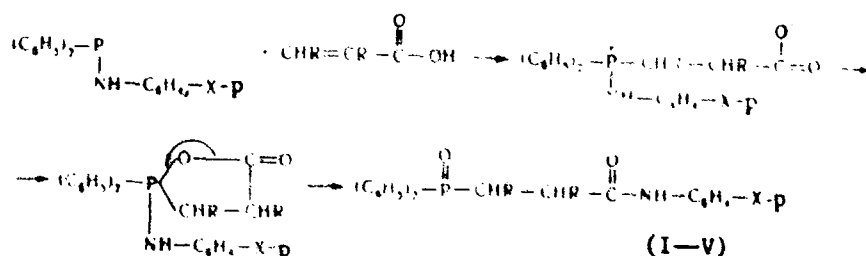


Table 1

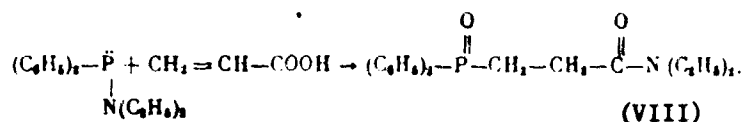
No.	Formula	Yield, %	mp, °C
I	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_5$	60	175-180
II	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}(\text{CH}_3)-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_5$	75	165-167
III	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_4-\text{CH}_3$	50	172-174
IV	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}(\text{CH}_3)-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_4-\text{CH}_3$	70	160-161
V	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}(\text{C}_6\text{H}_5)-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_5$	67	107-110
VI	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_4-\text{CH}_3$	65	200-202
VII	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}(\text{CH}_3)-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_4-\text{CH}_3$	50	127-128
VIII	$(\text{C}_6\text{H}_5)_2\text{P}(\text{O})-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}-\text{C}_6\text{H}_4-\text{CH}_3$	50	172-174

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ACC NR: AP8037906

are insoluble in water, ether, and petroleum ether, and are freely soluble in benzene and acetone.  $\beta$ -(N- $\alpha$ -Naphthylcarbamoyl)ethyldiphenylphosphine oxide (VI) and  $\beta$ -(N- $\alpha$ -naphthylcarbamoyl)- $\alpha$ -phenylethyldiphenylphosphine oxide (VII) were formed when  $\alpha$ -naphthylaminodiphenylphosphine was allowed to react with acrylic and cinnamic acids, respectively.  $\beta$ -(N,N-Diethylcarbamoyl)ethyldiphenylphosphine oxide (VIII) was formed



when  $Ph_2PNEt_2$  was allowed to react with acrylic acid. Orig. art. has: 1 figure, and 1 table. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 19Jun68/ ORIG REF: 002

Cord 3/3

ACC NR: AP8033647

SOURCE CODE: UR/0080/68/041/009/2052/2056

AUTHOR: Rachinskiy, F. Yu.; Potapenko, T. G.; Shapilov, O. D.; Osipyan, V. T.; Krupenina, A. A.

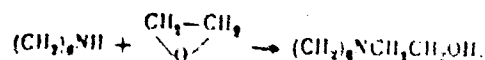
ORG: none

TITLE: N-Alkoxy(thio)ethyl derivatives of hexamethyleneimine and the products of their alkylation

SOURCE: Zhurnal prikladnoy khimii, v. 41, no. 9, 1968, 2052-2056

TOPIC TAGS: organic imine compound, quaternary amine, bactericide

ABSTRACT: Some N-alkoxy(thio)ethyl derivatives of hexamethyleneimine were synthesized to study the effect of the replacement of the alcarboxymethyl group with alkoxy(thio)ethyl on their bactericidal activity. N-(8-Hydroxyethyl)hexamethyleneimine (I) (80% yield, bp<sub>14</sub> 97°C, mp of HCl salt 115-118°C) was synthesized by adding ethylene oxide to hexamethyleneimine and benzene at 0°C. N-Hexyl-, N-decyl-, and N-dodecylhydroxyethylhexamethyleneimines (II-IV) (II in 50% yield) were

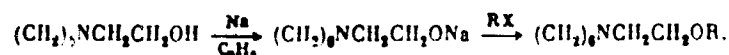


Cord 1/5

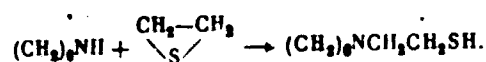
UDC: 547.415.3+576.8

ACC NR: AP8033647

prepared by adding alkyl bromide to Na and I in benzene and heating at 100°C for 2—3 hr. N-(8-Mercaptoethyl)hexamethyleneimine (V) (53%

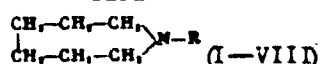


yield) was synthesized by adding ethylene sulfide in benzene to hexamethyleneimine in benzene at 50°C. N-Hexyl-, N-decyl-, and N-dodecyl-hexamethyleneimine (VI—VIII) (VI in 60% yield) were prepared by adding



NaOEt to V in EtOH in a stream of N. Water-soluble, crystalline or waxy

Table 1



No.	R	Bp (°C)	$n_D^{20}$	$d_4^{20}$
I	CH <sub>2</sub> CH <sub>2</sub> OH . . . . .	97/14	1.4880	0.9733

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ACC NR: AP8033647

Table 1. (Cont.)

II	CH <sub>2</sub> CH <sub>2</sub> O-C <sub>6</sub> H <sub>13</sub> . . . . .	125/3	1.4608	0.8824
III	CH <sub>2</sub> CH <sub>2</sub> O-C <sub>10</sub> H <sub>21</sub> . . . . .	178-180/6	1.4610	0.8678
IV	CH <sub>2</sub> CH <sub>2</sub> O-C <sub>11</sub> H <sub>23</sub> . . . . .	216-220/20	1.4612	0.8687
V	CH <sub>2</sub> CH <sub>2</sub> SH . . . . .	82-85/5	1.5089	0.9764
VI	CH <sub>2</sub> CH <sub>2</sub> S-C <sub>6</sub> H <sub>13</sub> . . . . .	—	1.4930	0.9295
VII	CH <sub>2</sub> CH <sub>2</sub> S-C <sub>10</sub> H <sub>21</sub> . . . . .	—	1.4879	0.9018
VIII	CH <sub>2</sub> CH <sub>2</sub> S-C <sub>12</sub> H <sub>25</sub> . . . . .	—	1.4735	0.9005

quaternary compounds IX—XXXVI (85—90% yields) were obtained by alkylation of II—IV and VI—VIII with alkyl halides, benzyl halides, or alkyl

Table 2



Compd	R	R'	X	Bp (°C)	Least concentration ensuring the destruction of test-microbe during 30 min exposure	
					B. Cell	St aureus
IX X	CH <sub>3</sub>	C <sub>6</sub> H <sub>13</sub> C <sub>10</sub> H <sub>21</sub>	J	115-117 Wax	Not active	1:200 1:1000
XI XII				135-136 158-160	1:800 1:3200	1:40 1:3200

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Table 2. (Cont.)

XIII	} C <sub>6</sub> H <sub>13</sub>	{ C <sub>6</sub> H <sub>13</sub> C <sub>6</sub> H <sub>17</sub>	Br	200—202	1: 3200	1: 12800
XIV				Wax	1: 3200	1: 6400
XV	} C <sub>7</sub> H <sub>15</sub>	{ C <sub>7</sub> H <sub>15</sub> C <sub>7</sub> H <sub>19</sub>		195—198	1: 1600	1: 12800
XVI				Wax	1: 800	1: 3200
XVII	} C <sub>8</sub> H <sub>17</sub>	{ C <sub>8</sub> H <sub>17</sub> C <sub>8</sub> H <sub>21</sub>		202—204	1: 3200	1: 6400
XVIII				203—205	1: 1600	1: 12800
XIX	} C <sub>9</sub> H <sub>19</sub>	{ C <sub>9</sub> H <sub>19</sub> C <sub>9</sub> H <sub>23</sub>		203—204	Not active	1: 800
XX				203—205	Not active	1: 3200
XXI	} C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	{ C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub>		Wax	1: 6400	1: 3200
XXII				Wax	1: 25600	1: 25600
XXIII	} CH <sub>2</sub> COOCH <sub>3</sub> CH <sub>2</sub> COOC <sub>3</sub> H <sub>7</sub> CH <sub>2</sub> COOC <sub>5</sub> H <sub>11</sub> CH <sub>2</sub> COOC <sub>7</sub> H <sub>15</sub>	{ C <sub>10</sub> H <sub>21</sub> C <sub>10</sub> H <sub>21</sub> C <sub>10</sub> H <sub>21</sub> C <sub>10</sub> H <sub>21</sub>	Cl	158—160	1: 800	1: 800
XXIV				164—165	1: 1600	1: 3200
XXV				165—166	1: 1600	1: 3200
XXVI				Wax	1: 400	1: 800
XXVII	CH <sub>2</sub> COOC <sub>10</sub> H <sub>21</sub>	C <sub>12</sub> H <sub>25</sub>		Wax	1: 6400	1: 12800

monochloroacetates. Bactericidal properties of IX—XXXVI are shown

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Table 3

$$\left[ \begin{array}{c} \text{CH}_2-\text{CH}_2-\text{CH}_2 \\ \text{CH}_2-\text{CH}_2-\text{CH}_2 \end{array} \right]_n \text{N}^+ \begin{array}{c} \text{R} \\ \text{CH}_2\text{CH}_2\text{SR}' \end{array} \text{X}^- \quad (\text{XXVIII—XXXVI})$$

Compd	R	R'	X	Least concentration ensuring the destruction of test-microbe during 30 min exposure	
				B. Col.	St. aureus
XXVIII	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>6</sub> H <sub>13</sub>	Cl	1:100	1:100
XXIX	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>6</sub> H <sub>13</sub>	Cl	1:6400	1:12800
XXX	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>10</sub> H <sub>21</sub>	Br	1:6400	1:25600
XXXI	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>10</sub> H <sub>21</sub>	Cl	1:200	1:1600
XXXII	CH <sub>2</sub> COOC <sub>10</sub> H <sub>21</sub>	C <sub>10</sub> H <sub>21</sub>	Cl	1:400	1:800
XXXIII	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>10</sub> H <sub>21</sub>	Cl	1:800	1:12800
XXXIV	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>12</sub> H <sub>25</sub>	Br	1:800	1:25600
XXXV	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>12</sub> H <sub>25</sub>	Br	1:800	1:25600
XXXVI	CH <sub>2</sub> COOC <sub>17</sub> H <sub>35</sub>		Cl	Not active	1:800

in Tables 2 and 3. Orig. art. has: 3 tables. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 19Apr67/ ORIG REF: 004

Card 5/5

ACC NR: AP8036095

SOURCE CODE: UR/0080/68/041/010/2326/2329

AUTHOR: Rachinskiy, F. Yu.; Potapenko, T. G.; Shapilov, O. D.; Osipyan, V. T.; Krupenina, A. A.

ORG: none

TITLE: N-Alkyl-N-alkylcarboxymethylhexamethyleneimmonium derivatives

SOURCE: Zhurnal prikladnoy khimii, v. 41, no. 10, 1968, 2326-2329

TOPIC TAGS: quaternary amine, bactericide

ABSTRACT: Waxy, water-soluble N-heptyl-N-decylcarboxymethylhexamethyleneimmonium chloride (X) (90% yield) was synthesized by refluxing N-heptylhexamethyleneimine and decyl monochloroacetate in 2-propanol for 20 hr. N-Heptylhexamethyleneimine (65% yield, bp<sub>10</sub> 86—125°C, n<sub>D</sub><sup>20</sup> 1.4585) was obtained from heptanol and hexamethyleneimine in 2-propanol, and decyl monochloroacetate (74% yield, bp<sub>4</sub> 138—140°C, n<sub>D</sub><sup>20</sup> 1.4461, d<sub>4</sub><sup>20</sup> 0.9658) was obtained by refluxing monochloroacetic acid, decanol, and H<sub>2</sub>SO<sub>4</sub> for 6 hr. Compounds I—IX and XI—XXII were prepared similarly to X. Compound X has a relatively low protein index (1.7—2.3), imparts to tissues residual bactericidal properties, disinfects (1% aqueous

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UDC: 547.288

ACC NR: AP8036095

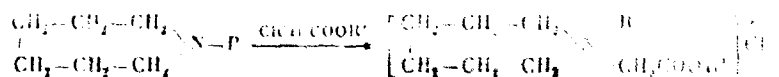
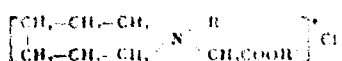


Table 1



Compd	R	R'	Minimum concentration ensuring the destruction of test microbe during 30 min exposure	
			B. Coli	S. aureus
I	C <sub>7</sub> H <sub>15</sub>	H	Not active	Not active
II		C <sub>6</sub> H <sub>13</sub>	1:20	1:20
III		C <sub>5</sub> H <sub>11</sub>	1:80	1:160
IV		C <sub>4</sub> H <sub>9</sub>	1:320	1:120
V		C <sub>3</sub> H <sub>7</sub>	Not active	Not active
VI		C <sub>2</sub> H <sub>5</sub>		
VII	C <sub>10</sub> H <sub>21</sub>	H	Not active	Not active
VIII		C <sub>6</sub> H <sub>13</sub>		
IX		C <sub>5</sub> H <sub>11</sub>	1:20	1:40
X		C <sub>4</sub> H <sub>9</sub>	1:80	1:160
XI		C <sub>3</sub> H <sub>7</sub>	1:320	1:120
XXII		C <sub>2</sub> H <sub>5</sub>	Not active	Not active

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ACC NR: AP8036095

Table 1. (Cont.)

XIII	C <sub>10</sub> H <sub>21</sub>	{	H	1 : 800	1 : 6400
XIV			C <sub>6</sub> H <sub>13</sub>	1 : 1600	1 : 1600
XV			C <sub>7</sub> H <sub>15</sub>	1 : 1600	1 : 3200
XVI			C <sub>10</sub> H <sub>21</sub>	1 : 400	1 : 3200
XVII	C <sub>18</sub> H <sub>37</sub>	{	H	Not active	1 : 800
XVIII			C <sub>6</sub> H <sub>13</sub>	1 : 100	1 : 400
XIX	C <sub>6</sub> H <sub>5</sub> C <sub>11</sub> H <sub>2</sub>	{	C <sub>6</sub> H <sub>13</sub>	Not active	1 : 100
XX			C <sub>10</sub> H <sub>21</sub>	1 : 800	1 : 3200
XXI			C <sub>12</sub> H <sub>25</sub>	1 : 800	1 : 800
XXII			C <sub>18</sub> H <sub>37</sub>	Not active	1 : 800

solution) the human hand in 6 min, is practically non-toxic, and does not irritate the skin. Compounds Xa (75% yield) and Xb were synthesized similarly to X; however, the N-alkylhexamethyleneimines were prepared from alkyl bromides (72% yield, bp<sub>20</sub> 80—130°C, n<sub>D</sub><sup>20</sup> 1.4480)

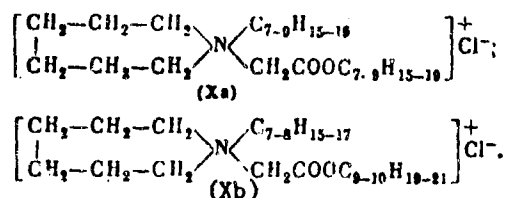
Table 2

Compd	Minimum concentration ensuring the destruction of test microbe during 30 min exposure	
	B. Coll.	St. aur.
(Xa)	1 : 3200	1 : 12800
(Xb)	1 : 400	1 : 1600

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ACC NR: AP8036095

obtained from hydrogenated butyl esters of fatty acids, and the



corresponding monochloroacetates were prepared in 70% yield (bp<sub>5</sub> 120—130°C, n<sub>D</sub><sup>20</sup> 1.4388). Bactericidal data are shown in Table 2. Orig. art. has: 2 tables. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 19Apr67/ ORIG REF: 003

Card 4/4

ACC NR: AP8035546

SOURCE CODE: UR/0079/68/038/010/2342/2343

AUTHOR: Razumova, N. A.; Yevtikhov, Zh. L.; Zubtsova, L. I.; Petrov, A. A.

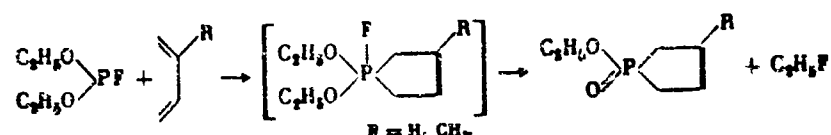
ORG: Leningrad Technological Institute im. Lensovet (Leningradskiy tekhnologicheskii institut)

TITLE: Reactions of alkyl and dialkyl fluoro- and difluorophosphites with 1,3-diene hydrocarbons

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2342-2343

TOPIC TAGS: fluorinated organic compound, phosphorous acid derivative, phosphite ester

ABSTRACT: The reaction of diethyl fluorophosphite with 1,3-butadiene and isoprene in sealed tubes at 135-150°C proceeds with Arbuzov rearrangement to form the earlier reported phospholine oxides:

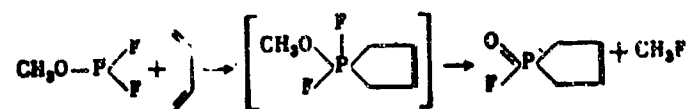


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UDC: 547.341

ACC NR: AP8035546

Under the same conditions, methyl difluorophosphite was allowed to react with 1,3-butadiene to form the earlier reported fluorinated phospholine oxide:



The formation of the phospholine oxides in the above reactions was confirmed by IR and NPR spectra. [WA-50; CBE No. 38] [PS]

SUB CODE: 07/ SUBM DATE: 07Mar68/ ORIG REF: 002/ OTH REF: 001

Card 2/2

ACC NR: AP8034816

SOURCE CODE: UR/0450/68/002/010/0014/0017

AUTHOR: Saldabol, N. O.; Alekseyeva, L. N.; Brizga, B. A.; Zile, A. Ya.; Kruzmetra, L. V.; Medne, K. K.

ORG: Institute of Organic Synthesis, AN LatSSR, Riga (Institut organicheskogo sinteza AN LatSSR)

TITLE: Synthesis and antimicrobial action of  $\alpha$ -(5-nitro-2-furyl)quinoxaline and its derivatives

SOURCE: Khimiko-farmatsevticheskiy zhurnal, v. 2, no. 10, 1968, 14-17

TOPIC TAGS: furan compound, tuberculosis, bactericide, fungicide

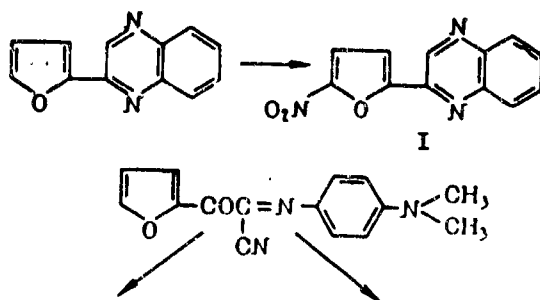
ABSTRACT: The title compounds were synthesized in a search for chemotherapeutic agents among nitrofuryl-substituted heterocyclic nitrogen compounds. 2-(5-Nitro-2-furyl)quinoxaline (I) (85% yield, mp 217–219°C from HPh and petroleum ether) was synthesized by adding 2-(2-furyl)quinoxaline to concentrated  $H_2SO_4$  and 70%  $HNO_3$ . Bright yellow acicular 3-(2-furyl)-2-cyanoquinoxaline (II) (72% yield, mp 161–162°C from HPh and petroleum ether) was synthesized by boiling N-(2-furoylcyanomethylene)dimethylaminoaniline, o-phenylenediamine, and 50% HOAc for 7 hr. 3-(5-Nitro-2-furyl)-2-cyanoquinoxaline (III) (5.06 g yield, mp 224–225°C

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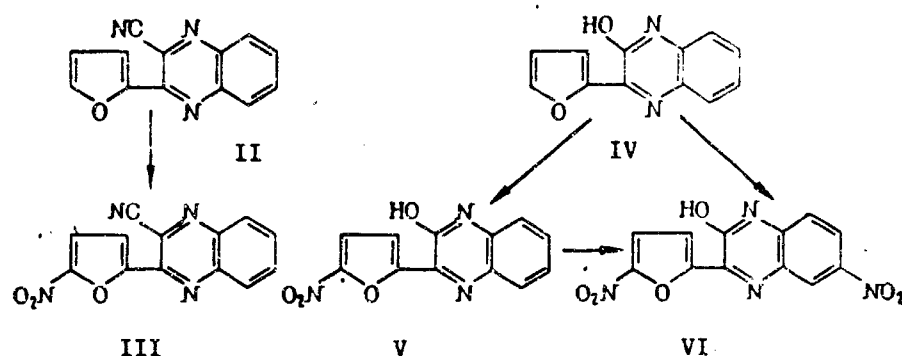
UDC: 615.281:547.863.1

ACC NR: AP8034816

from  $HCONMe_2$ ) was obtained by adding 4.1 g II to concentrated  $H_2SO_4$  and 70%  $HNO_3$  at 0°C. 2-Hydroxy-3-(2-furyl)quinoxaline (IV) (73% yield, mp 262–264°C, decomposes, from HOAc) was synthesized by boiling N-(2-furoylcyanomethylene)dimethylaminoaniline, o-phenylenediamine, EtOH, and concentrated HCl for 1 hr. Light-yellow prismatic 3-(5-nitro-2-furyl)-2-hydroxyquinoxaline (V) (85% yield, mp 327–330°C, decomposes, from HOAc) was obtained by adding 70%  $HNO_3$  and  $H_2SO_4$  to IV in  $H_2SO_4$  at 10°C with stirring. Light yellow prismatic 6-nitro-3-(5-nitro-2-furyl)-2-hydroxyquinoxaline (VI) (93% yield, mp 323–326°C, decomposes, from HOAc or  $HCONMe_2$  and  $H_2O$ ) was obtained by adding IV to 70%  $HNO_3$  and  $H_2SO_4$  at 6–8°C with stirring for 30 min at 10°C. Compound VI was also prepared in 90% yield by adding V to  $HNO_3$  and  $H_2SO_4$ . The tuberculostatic



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action of I—VI *in vitro* was determined by the surface culture method. Each compound was dissolved in  $\text{HCONMe}_2$  and diluted with Model semiliquid nutrient medium. The inoculate contained 1 million mycobacteria in 1 ml physiological solution. Growth activity was noted every 10 days for 30 days. In Table 1, anti-tuberculosis activity is expressed as the minimum inhibiting concentration of I—VI. Anti-bacterial data are shown in Table 2. A test of the fungistatic activity of I—VI with respect to

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Table 1. Tuberculostatic activity of derivatives of  $\alpha$ -(2-furyl)quinoxaline (in  $\mu\text{g/ml}$ ) in experiments *in vitro*

Compd	Ratio of $\text{HCONMe}_2$ and nutrient medium in preparing the working solution	Mycobacterium tuberculosis			
		$\Delta_{578\text{Rv}}$	Ravenel	Valel	D
I	1:1	3,12	2,34	2,34	9,37
II	1:3 (residue)	<25	<25	<18,75	<50,00
III	1:1	9,37	4,60	12,50	9,37
IV	1:3	37,50	18,75	37,50	50,00
V	1:2	0,39	0,39	3,10	12,50
VI	1:5,6	0,39	0,39	50,00	16,70
Streptomycin		0,50 <sup>1</sup>	1,00 <sup>1</sup>	33,00 <sup>1</sup>	50,00 <sup>1</sup>
Tubazide		0,37	0,33	50,00	50,00
		0,23	0,15	12,50	25,00

<sup>1</sup>In the presence of 10% horse blood serum

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ACC NR: AP8034816

Table 2. Antibacterial activity of derivatives of  $\alpha$ -(2-furyl)quin-oxaline

Microorganism	No. of strain	Minimum concentration inhibiting growth of microbes (in µg/ml)							Fur-az-olidone
		I	II	III	IV	V	VI		
St. aureus	209	4.1	33	33	33	8	—	4.1	
Bac. mycoides	1	2	16	4.1	16	4.1	—	0.2	
E. coli	675	1.04	> 100	0.19	> 100	1.04	0.52	2	
Sh. sonnei	5063	0.043	> 100	0.043	> 100	0.39	0.13	0.2	
Salm. paratyphi	493	0.78	> 100	0.26	> 100	2.08	0.78	0.83	
» typhi	4446	0.19	> 100	0.19	> 100	0.39	1.04	8.3	
» typhimurium	4867	0.26	> 100	0.19	> 100	1.04	1.04	—	
Proteus vulgaris	1	100	> 100	100	> 100	100	6.25	33	

Note. Basic solution was prepared by dissolving 5 mg I—VI wetted with 1 ml Tween-20 in 2 ml EtOH and 47 ml  $\text{H}_2\text{O}$ .

*Candida albicans* 67/846, *Epidermophyton Kaufman—Wolf* 41, and *Trichophyton gypseum* 4/3 showed their minimum inhibiting concentration to be above 83  $\mu\text{g/ml}$ . Orig. art. has: 2 tables. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 26Apr68/ ORIG REF: 006/ OTH REF: 010

Card 5/5

ACC NR: AP8037914

SOURCE CODE: UR/0442/68/000/011/1024/1027

AUTHOR: Samaray, L. I.; Belaya, V. P.; Bondar, V. O.—Bondar', V. A.; Derkach, H. I.—Derkach, G. I. (Corresponding member AN UkrRSR)

ORG: Institute of Organic Chemistry, AN URSR (Instytut organichnoyi khimiyi AN URSR)

TITLE: Reaction of carboxylic acid iminoesters and amidines with oxalyl chloride

SOURCE: AN UkrRSR. Dopovid. Seriya B. Neolohiya, heofizyka, khimiya ta biolohiya, no. 11, 1968, 1024-1027

TOPIC TAGS: organic isocyanate compound, imidazoline, aliphatic ether, organic imine compound

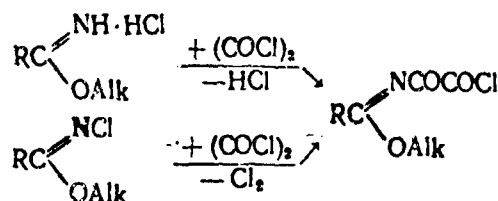
ABSTRACT: Unstable N-chlorooxalyl iminoesters were obtained when iminoesters, iminoether hydrochlorides, and N-chloroiminoesters were allowed to react with oxalyl chloride. Acyl isocyanates (I—V) were formed

Card 1/5

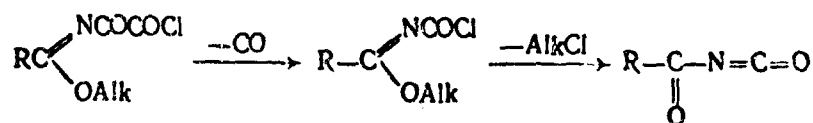
UDC: 547.297.2+547.491.4+547.783

- 104 -

ACC NR: AP8037914



when the N-chlorooxalyl iminoesters were heated to 110—130°C.



R =  $\text{CCl}_2$ ,  $\text{CH}_2\text{ClCCl}_2$ ,  $\text{C}_6\text{H}_5$ , p- $\text{ClC}_6\text{H}_4$ , p- $\text{NO}_2\text{C}_6\text{H}_4$ . (I—V)

Imidazoline-4,5-dione hydrochlorides (VI—XVIII) were obtained by allowing oxalyl chloride to react with carboxylic acid amidines in  $\text{CCl}_4$  at 50—70°C. Compounds XIX—XXXI were formed by the hydrolysis

Card 2/5

ACC NR: AP8037914

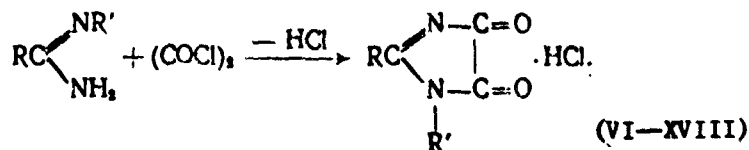
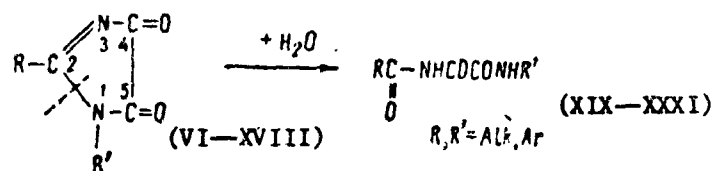


Table 1

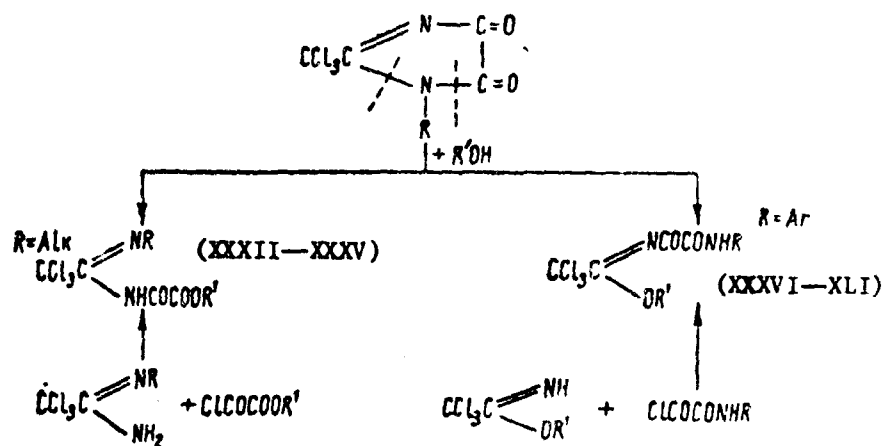
No.	R	R'	% Yield	Mp, °C
VI	$\text{CCl}_2$	H	82	194 (decomp.)
VII		$\text{CH}_3$	72	156—158
VIII		$\text{C}_6\text{H}_5$	70	107—109
IX		$\text{CH}_2\text{CH}_2\text{C}_6\text{H}_5$	87	151—152
X		$\text{C}_6\text{H}_5$	99	188 (decomp.)
XI		$\text{C}_6\text{H}_5\text{CH}_2\text{CH}_2$	87	153 (decomp.)
XII		$\text{C}_6\text{H}_5(\text{CH}_2)_2\text{CH}_2$	88	201 (decomp.)
XIII		$\text{C}_6\text{H}_5\text{Cl-p}$	93	197 (decomp.)
XIV		$\text{C}_6\text{H}_5\text{OCH}_2\text{-o}$	91	177 (decomp.)
XV		$\text{C}_6\text{H}_5\text{OCH}_2\text{-p}$	94	191 (decomp.)
XVI	$\text{C}_6\text{H}_5$	H	60	192 (decomp.)
XVII		$\text{C}_6\text{H}_5$	99	178 (decomp.)
XVIII		$\text{C}_{10}\text{H}_7\text{-}\alpha$	89	179 (decomp.)

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ACC NR: AP8037914

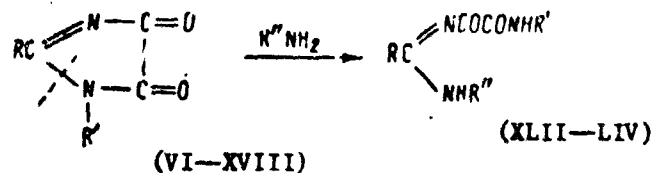


of VI-XVIII. Compounds XXXII-XLI were obtained by the alcoholysis of VI-XV. Compounds XLII-LIV were obtained by the aminolysis of VI-XVIII.



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ACC NR: AP8037914



Orig. art. has: 1 table and 8 formulas.

[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 19Mar68/ ORIG REF: 002

Card 5/5

ACC NR: AP8035706

SOURCE CODE: UR/0394/68/006/010/0049/0050

AUTHOR: Samosvat, L. S.

ORG: VNII of Hygiene and Toxicology of Pesticides, Polymers, and Plastics (VNII gigiyeny i toksikologii pestitsidov, polimernykh i plasticheskikh mass)

TITLE: Determination of residual amounts of herbicides in food products by thin layer chromatography .

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 10, 1968, 49-50

TOPIC TAGS: urea compound, thin layer chromatography, food sanitation

ABSTRACT: The content of residual amounts of the phenylurea-derivative herbicides Monuron (I), Diuron (II), Faloran (III), and Linuron (IV) and of the acid anilide herbicides propanid (V) and Solan (VI) in extracts of potatoes, grapes, turnips, peas, corn, green onions, and carrots was determined by thin-layer chromatography. The sorbent, which was prepared by sifting 50 g  $Al_2O_3$  and 5 g  $CaSO_4$  with subsequent addition of 75 ml  $H_2O$ , was smeared on plates and dried. Three spots were applied to the plates: one containing 10  $\mu$ g herbicide in 0.05 ml MeOH or EtOH, one containing 20  $\mu$ g herbicide in 0.1 ml MeOH or EtOH, and the third

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UDC: 632.954:543.544

ACC NR: AP8035706

containing the test solution. After removal from the chromatography chamber, the plates were dried, heated for 1 hr at 160-170°C, and sprayed with a solution of 4 ml concd  $H_2SO_4$  and 1 g  $NaNO_3$  in 46 ml  $H_2O$

Table 1

Compd.	Mobile phase	$R_f$
I	Di-Et ether of $CHCl_3$	$0.43 \pm 0.05$
II		$0.41 \pm 0.05$
III		$0.45 \pm 0.04$
IV	Di-Et ether and $CCl_4$ (3:2)	$0.42 \pm 0.04$
V		$0.32 \pm 0.05$
VI	Di-Et ether and $CCl_4$ (1:1)	$0.65 \pm 0.04$

and with a solution of 2.8 g KOH and 0.1 g 1-naphthol in 50 ml  $H_2O$ . The appearance of a red color in the test spot indicated the presence of I-VI. Values of  $R_f$  for I-VI are shown in Table 1. Orig. art. has: 1 table. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 05Feb68/ OTH REF: 002

Card 2/2

ACC NR: AP8033981

SOURCE CODE: GE/0075/68/000/005/0285/0289

AUTHOR: Schumacher, K. (Major, Medical service)

ORG: Medical Service (Medizinischer Dienst)

TITLE: Antidotes against organophosphorus compounds

SOURCE: Zeitschrift fur militarmedizin, no. 5, 1968, 285-289

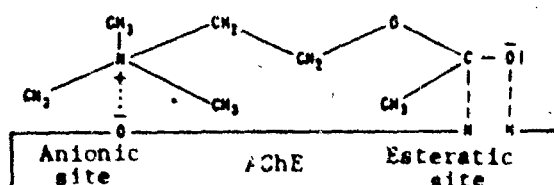
TOPIC TAGS: antidote, acetylcholinesterase, nerve gas, atropine, drug dosage response

ABSTRACT: This article outlines the mechanism of acetylcholinesterase (AChE) inhibition (see Fig. 1) as a three-step process: the attachment of the organophosphorus compound to the enzyme, the nucleophilic reaction of the enzyme with the phosphorus acid ester, and the "aging" of the enzyme, which is explained either as transphosphorylation or as dealkylation, where the first two stages are reversible, but in the third stage the phosphoryl group alters its point of attachment and bonding to the enzyme so that any further reaction is impossible. Fig. 2 shows the probable mechanism of AChE reactivation, which requires a cationic center for fixation at the anionic site of the enzyme and a nucleophilic group to remove the phosphoryl group. The prophylactic action of AChE

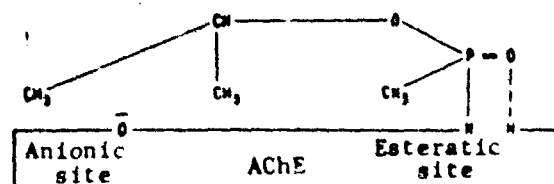
Cord 1/6

ACC NR: AP8033981

a) ACh-fixation



b) Inhibition by Sarin



c) Inhibition by choline methylphosphonate

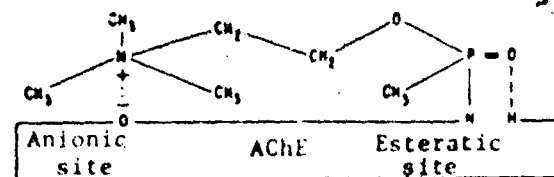
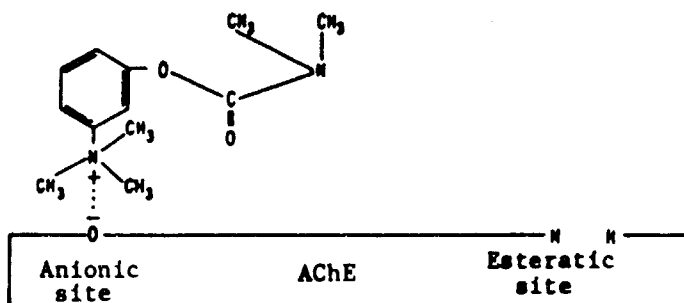


Fig. 1. Enzyme-substrate bond (ACh fixation and AChE inhibition)

Cord 2/6

ACC NR: AP8033981

a) AChE-inhibition by neostigmine



b) Fixation and point of attachment of 2-PAM during reactivation of AChE inhibited by Sarin

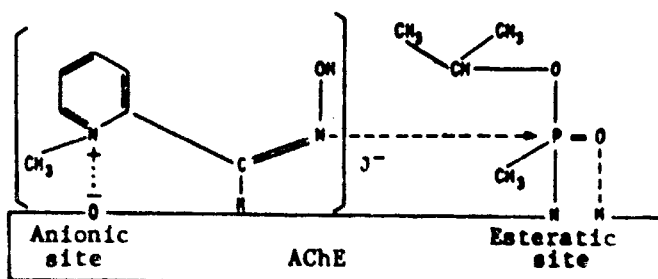


Fig. 2. Enzyme-substrate bond (Reversible AChE inhibition and fixation of AChE reactivators)

Cord 3/6

ACC NR: AP8033981

reactivators is in contradiction with the hypothesis that in Soman-phosphorylated AChE (atropine and S-100 are cited as poor Soman antidotes) the anionic site is so shielded by the protective network of alkoxy sites that the reactivator is unable to be attracted and fixed. A more probable explanation is the rapid "aging" of Soman-inhibited AChE, where the rate of phosphorylation and of the probable subsequent reactions (transphosphorylation, dealkylation) depends upon the structure of the inhibitor. Soman causes outward symptoms of intoxication, despite relatively poor blood or brain-AChE inhibition, has other points of attachment besides AChE, and is thus of importance in antidote research. S-100 is superior to TMB-4, which subcutaneously increases LD<sub>50</sub> for Sarin 27-fold and for Tabun 8.7-fold, because S-100 is able to penetrate the blood-brain barrier in higher doses, effects greater and faster reactivation of AChE, and exerts a stronger atropine-like effect. The disadvantage of 2-PAM as opposed to S-100 is that 2-PAM requires 30 to 60 min to take effect, remedies neither the central nervous disturbances, nor the respiratory failure, and must be administered intravenously. TMB-4, despite some findings, is not too toxic for practical use. LD<sub>50</sub> (mouse) ip is 240 mg/kg for 2-PAM, 131 mg/kg for TMB-4, and 141 mg/kg for S-100. LD<sub>50</sub> (rat) iv is 98 mg/kg for TMB-4 and 110 mg/kg for S-100. S-100 and TMB-4 are recommended for intramuscular administration in a single 250-mg dose with 2 mg of atropine, no more than 10 min after

Cord 4/6

ACC NR: AP8033981

a) TMB-4 (International tradename  
Trimedoximum)

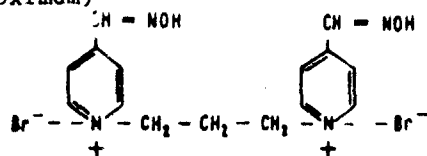
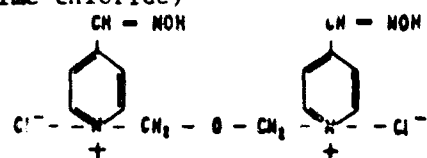


Fig. 3. The presently most practically important AChE reactivators

b) S-100 (International tradename  
Obidoxime chloride)



poisoning, to be repeated only once, since in  $10^{-3}$  M concentrations TMB-4 decreases AChE activity by 20%, and S-100 decreases it by 35%. Two hundred fifty milligrams of S-100 or TMB-4 in combination with 2 mg of atropine increases the human heart rate by 42% (with a maximum occurring 50 min after intramuscular administration), causes dry mouth, light dizziness, fatigue, heat pangs, and paresthesia. Variation of the

Cord 5/6

ACC NR: AP8033981

chain binding the two hydroxyiminomethylpyridinium radicals did not result in better antidotes. Aliphatic oximes, such as DAM (diacetylmonooxime), MINA (monoisonitrosoacetone), DINA (diisonitrosoacetone), may later assume significance. Sheyn (of the Military Medical Academy im. S. M. Kirov, Leningrad) found that in cats poisoned with DFD (dialkylaminoalkyl diphenylcarboxylate) or Paraoxon in absolutely lethal doses, all ten animals survived when given intramuscularly at the start of tonic-clonic spasms a combination of atropine (0.02 mg/kg), Arpenal (3-diethylaminopropyl diphenylacetate) (1 mg/kg), TMB-4 (3 mg/kg), and Isonitrosin (1-dimethylamino-2-isonitroso-3-butanone hydrochloride) (20 mg/kg). Atropine and Arpenal were ineffective alone. When Isonitrosin was also administered, two or three animals survived, and when TMB-4 was also administered (without Isonitrosin), 8 to 10 animals survived. AChE could serve as a model for effective antidotes, and the concept of "inner detoxication" could help explain the effect of Soman poisoning and the effect of prophylaxis. Attempts to interfere with ACh metabolism by addition of AChE obtained from the electric organs of electric eels and rays, or by inhibition of choline-acetylase, e.g., with morin (pentahydroxyflavone) or Hemicholinium (dimethylaminoethanol-4,4'-biazetophenone), should only be mentioned. The self-toxicity of the choline acetylase inhibitor prevents practical use. Orig. art. has: 3 figures. [WA-50; CBE No. 38] [FT]

SUB CODE: 007/ SUBM DATE: 22Jan68/ ORIG REF: 007/ OTH REF: 003/  
SOV REF: 001

Cord 6/6

ACC NR: AP8033913

SOURCE CODE: UR/0020/68/182/004/0859/0851

AUTHOR: Sheremeteva, T. V.; Sharifov, G. S.; Romashkova, K. A.

ORG: none

TITLE: Preparation of N-substituted amides of piperazinonyl- and methyl-piperazinonyl-acetic acid

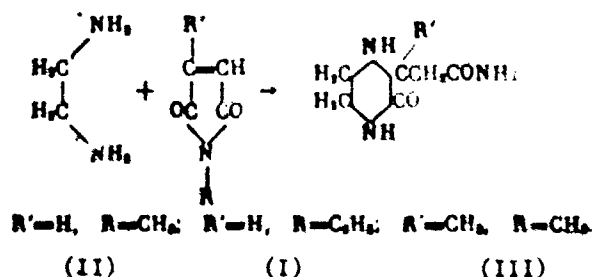
SOURCE: AN SSSR. Doklady, v. 182 no. 4, 1968, 859-861

TOPIC TAGS: substituted amide, polycondensation

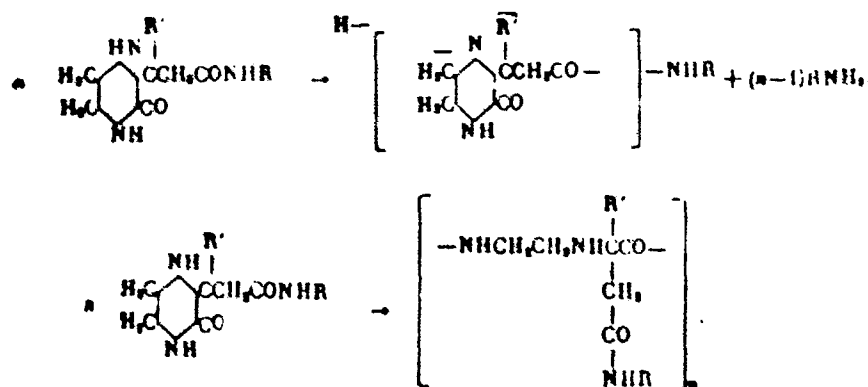
ABSTRACT: Piperazinonylacetic acid N-phenylamide (I) (79% yield, mp 159—159.5°C) was synthesized by adding 3.46 g N-phenylmaleimide to 1.2 g ethylenediamine in toluene, piperazinonylacetic acid N-methylamide (II) (79% yield, mp 160—160.5°C) was similarly synthesized by adding 2.22 g N-methylmaleimide to 1.2 g ethylenediamine, and methylpiperazinonylacetic acid N-methylamide (III) (53% yield, mp 138—140°C) was obtained from 2.25 g N-methylcitraconimide and 1.1 g ethylenediamine. Compounds I—III

Cord 1/3

ACC NR: AP8033913



may possibly be used in polycondensation and polymerization, as shown:



Cord 2/3



ACC NR: AP8033913

The paper was presented by Academician A. N. Nesmeyanov, 26 Feb 68.  
Orig. art. has: 1 table. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 20Feb68/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AP8035543

SOURCE CODE: UR/0079/68/038/010/2340/2341

AUTHOR: Shitov, L. N.; Gladshteyn, B. M.

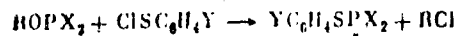
ORG: none

TITLE: Synthesis of S-aryl esters of halogenated phosphoric and phosphonic acids

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2340-2341

TOPIC TAGS: halogenated organic compound, phosphate ester, phosphonate ester, aliphatic phosphorus compound, aliphatic sulfur compound, thiophosphate ester, thiophosphonate ester

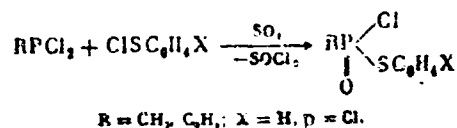
ABSTRACT: Arylsulfenyl chlorides were allowed to react with alkyl dihalophosphites at -10 to -15°C without a solvent and with alkyl(aryl)dichlorophosphines at -10 to -20°C in liquid SO<sub>2</sub> to form the halogenated phosphates and phosphonates:



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UDC: 547.26'118  
- 112 -

ACC NR: AP8035543



Compound	Yield %	Bp (mm)	Mp
$\text{C}_6\text{H}_5\text{SP(O)F}$	85	88-89° (20)	28-29°
$p\text{-ClC}_6\text{H}_4\text{SP(O)F}$	88	88-90 (4)	39-40
$\text{C}_6\text{H}_5\text{SP(O)Cl}$	86	95-97 (1)	38
$p\text{-ClC}_6\text{H}_4\text{SP(O)Cl}$	78	117-118 (1)	65
$\text{CH}_3\text{P} \begin{array}{l} \text{SC}_6\text{H}_5 \\   \\ \text{Cl} \end{array}$	85	111-113 (0.05)	—
$\text{CH}_3\text{P} \begin{array}{l} \text{SC}_6\text{H}_4\text{Cl-p} \\   \\ \text{Cl} \end{array}$	81	137-138 (0.1)	46-49
$\text{C}_6\text{H}_5\text{P} \begin{array}{l} \text{SC}_6\text{H}_5 \\   \\ \text{Cl} \end{array}$	81	152-153 (0.05)	—

characterized in the above table.

[WA-50; CBZ No. 38] [PS]

SUB CODE: 07/ SUBM DATE: 01Apr68

Card 2/2

ACC NR: AP8037915

SOURCE CODE: UR/0442/68/000/011/1028/1030

AUTHOR: Shvayka, O. P.; Lytvynenko, L. M. -- Litvinenko, L. M.  
(Academician AN UkrRSR)

ORG: Donetsk Department of Physical Organic Chemistry, Institute of Physical Chemistry, AN UkrRSR (Donets'ke viddiennya fizyko-organichnoyi khimiyi Instytutu fizychnoyi khimiyi AN URSR)

TITLE: Competitive cyclization of diacylhydrazines

SOURCE: AN UkrRSR. Dopovid. Seriya B. Neolohiya, heofizyka, khimiya ta biolohiya, no. 11, 1968, 1028-1030

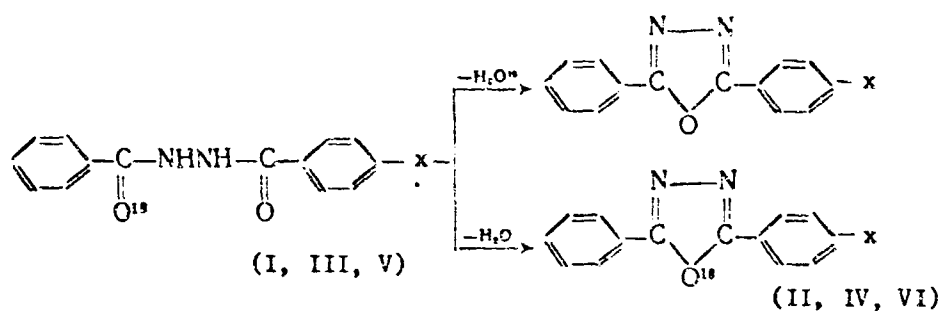
TOPIC TAGS: cyclization, organic azole compound, heterocyclic oxygen compound, hydrazine compound

ABSTRACT: A study was performed of cyclization of 1,2-dibenzoyl- $^{18}\text{O}_1$ -hydrazine, and 1-(p-nitrobenzoyl)-2-benzoyl- $^{18}\text{O}_1$ -hydrazine. Oxadiazole rings are formed by the competitive cyclization of diacylhydrazines, i.e., by intramolecular nucleophilic substitution. In an

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UDC: 547.7  
- 113 -

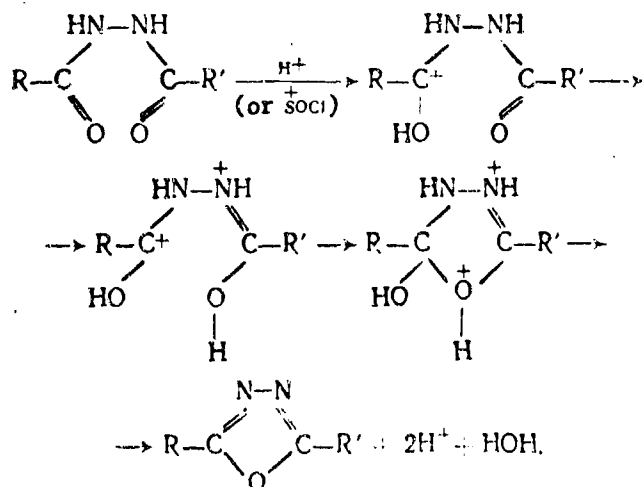
ACC NR: AP8037915



acidic medium, primarily the less basic O atom (associated with the more electron-acceptor substituent) enters the ring. Under such conditions, this O is more nucleophilic during cyclization, since the more basic O atom is blocked by the acidifying agent and undergoes cleavage.

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ACC NR: AP8037915



The NO<sub>2</sub> and MeO substituents affect mainly the carbonyl O atom rather than the electrophilic C reaction center. The paper was presented by Academician L. M. Lytvynenko (Litvinenko), AN UkrRSR. Orig. art. has: 1 table. [WA-50; CBE No. 39] [FT]

CODE: 07/ SUBM DATE: 05Jun67/ ORIG REF: 007/ OTH REF: 012

Card 3/3

ACC NR: AP8035701

SOURCE CODE: UR/0394/68/006/010/0034/0033

AUTHOR: Smelyanets, V. P.; Kuznetsov, N. V.

ORG: Ukrainian NII of Plant Protection (Ukrainskiy NII zashchity rasteniy); Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Toxicity of some terpene compounds

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 10, 1968, 34-35

TOPIC TAGS: insect control, organic insecticide, acetate ester, terpene

ABSTRACT: Lethal concentrations of terpenes for the pine pest *Aradus cinnamomeus* Panz. are shown in Table 1. The limonenes and  $\Delta^3$ -carene were found to be synergists in oleoresin, and  $\beta$ -pinene from the common pine was found to be an antagonist in oleoresin. Lethal concentrations of terpenic alcohols and their acetates are shown in Table 2. Lethal concentrations of terpene acetates for the apple-tree ermine-moth (*Hyponomeuta malinellus*) are shown in Table 3. Limonene repels larvae of the common pine sawfly (*Lophyrus pini*). Bornyl acetate, limonene,  $\alpha$ -terpineol, and  $\Delta^3$ -carene repel second-stage pine moth (*Dendrolimus pini*) caterpillars. These caterpillars are attracted by pinenes,

Card 1/3

UDC: 632.951

ACC NR: AP8035701

Table 1

	LC <sub>50</sub> , mg/cm <sup>3</sup> for $r = 0.05\%$
$\alpha$ -Pinene of common pine	0.2634 $\pm$ 0.0047
$\alpha$ -Pinene of Crimean pine	0.2257 $\pm$ 0.0002
$\beta$ -Pinene of common pine	0.3207 $\pm$ 0.0001
$\beta$ -Pinene of Crimean pine	0.3045 $\pm$ 0.0002
d-Limonene of common pine	0.4354 $\pm$ 0.0009
l-Limonene of Crimean pine	0.2874 $\pm$ 0.00001
$\Delta^3$ -Carene of common pine	0.1892 $\pm$ 0.00004

Note: Toxicity was determined from overall action during contact and fumigation.

Table 2

	LC <sub>50</sub> , mg/cm <sup>3</sup> for P = 0.05%	
	for <i>Aradus cinnamomeus</i>	for <i>lps typographus</i>
Bornyl acetate	0.0338 $\pm$ 0.0008	--
Terpineol	0.0079 $\pm$ 0.0001	0.2274 $\pm$ 0.0005
Terpinyl acetate	--	0.0327 $\pm$ 0.00004
Terpinyl diacetate	--	0.0359 $\pm$ 0.0108
Polychloropinene (standard)	--	0.3273 $\pm$ 0.0004

Card 2/3

ACC NR: AP8035701

Table 3

	LC <sub>50</sub> , mg/g for P = 0.05%
Terpenyl acetate	143.1±1.1159
Menthyl acetate	142.2±4.9149
Verbenyl acetate	121.0±5.9436
Polychlorocamphene (standard)	320.8±6.2500

camphene, and borneol. *Aradus cinnamomeus* is attracted by bornyl acetate,  $\alpha$ -terpineol, and  $\beta$ -pinene. Engraver beetles (*Ips typographus*) are attracted by camphene, limonene, borneol, and  $\alpha$ -pinene.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AP8034739

SOURCE CODE: GE/9007/68/038/03-/0142/0146

AUTHOR: Splinter, F. K.; Arold, H.

ORG: Institute of Pharmacology, Institute of Organic Chemistry and Biochemistry, Friedrich Schiller University, Jena (Institut für Pharmakologie und Institut für Organische Chemie und Biochemie der Friedrich-Schiller-Universität)

TITLE: New synthesis of 2-thiapyrones

SOURCE: *Jurnal für praktische Chemie*, v. 38, no. 3-4, 1968, 142-146

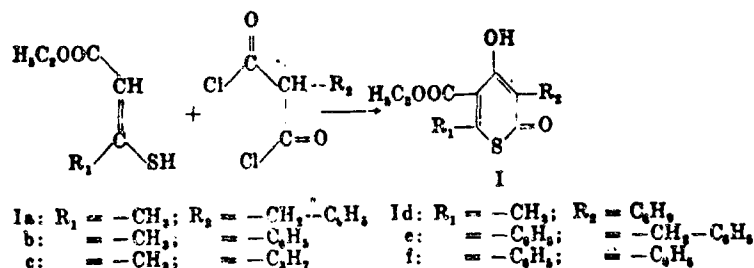
TOPIC TAGS: heterocyclic sulfur compound, ketone, biologically active compound

ABSTRACT: The title compounds were synthesized to study their khellin-like, spasmolytic, and ganglioplegic properties. Yellow crystalline 4-hydroxy-5-carbethoxy-2-thiapyrones Ia (64% yield, mp 76°C), Ib (46% yield, mp 79°C), Ic (38.8% yield, mp 81°C), and Id (31.5% yield, mp 50°C) were synthesized by refluxing the corresponding malonyl dichlorides and ethyl  $\beta$ -mercaptocrotonate in toluene for 5--6 hr. Yellow crystalline Ie (60.6% yield, mp 131°C) and colorless crystalline If (69.6% yield, mp 245°C) were similarly synthesized from the corresponding malonyl

Card 1/3

ACC NR: AP8034739

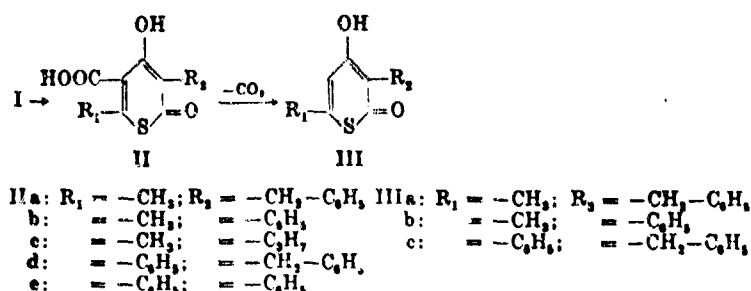
dichlorides and ethyl β-mercaptocinnamate. Crystalline 4-hydroxy-



5-carboxy-2-thiapyrones IIa (71.5% yield, mp 245°C), IIb (55.5% yield, mp 232°C), IIc (76% yield, mp 203°C), IId (81% yield, mp 186°C), and IIe (56.5% yield, mp 258°C) were synthesized by heating Ia—Ic, Ie, and If, respectively, and Ba(OH)<sub>2</sub> in water for 4 hr. Crystalline 4-hydroxy-2-thiapyrones IIIa (54.4% yield, mp 195°C), IIIb (55.5% yield, mp 232°C), and IIIc (69% yield, mp 238°C) were synthesized by refluxing IIa, IIb, and IId, respectively, in nitrobenzene in the presence of quinoline for

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ACC NR: AP8034739



20 min. The properties and transformations of the synthesized compounds will be described separately. [WA-50; CBE No. 58] [FT]

SUB CODE: 07/ SUBM DATE: 01Nov67/ ORIG REF: 005/ OTH REF: 003

Card 3/3

ACC NR: AP8034653

SOURCE CODE: UR/0073/68/034/010/1036/1038

AUTHOR: Stepanova, O. S.; Oleynik, T. N.; Chekurda, A. I.; Prudnik, N.E.

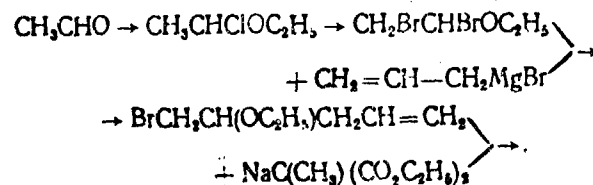
ORG: Odessa State University im. I. I. Mechnikov (Odesskiy gosudarstvennyy universitet)

TITLE: Synthesis of 2-methylhepta-4,6-dienoic acid

SOURCE: Ukrainskiy khimicheskii zhurnal, v. 34, no. 10, 1968, 1036-1038

TOPIC TAGS: carboxylic acid, fungicide, bactericide, conjugate bond system

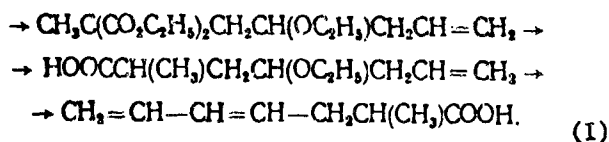
ABSTRACT: The title compound (I) (mp 109°C, acid value 385) was synthesized by saponification of diethyl methyl-β-allyl-β-ethoxyethylmalonate, with subsequent treatment with dilute H<sub>2</sub>SO<sub>4</sub>, to study the correlation between conjugate bonding effects and fungicidal and bactericidal



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UDC: 547:546/547.07

ACC NR: AP8034653



effects. Compound I, in comparison with sorbic acid, is a poor fungicide with respect to *Aspergillus niger*. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 16Mar67/ ORIG REF: 003/ OTH REF: 001

Card 2/2

ACC NR: AP8034741

SOURCE CODE: UR/9007/68/038/03-/0222/0232

AUTHOR: Tomaschewski, G.; Kuhn, G.

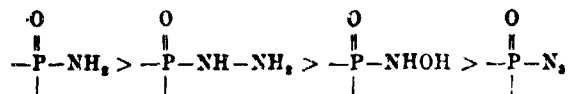
ORG: Chemical Institute, Humboldt University, Berlin (Chemisches Institut der Humboldt-Universität)

TITLE: Kinetic studies of the acid stability of the P—N bond in diarylphosphinic acid anilides

SOURCE: Jurnal fur praktische Chemie, v. 38, no. 3-4, 1968, 222-232

TOPIC TAGS: phosphinic acid, kinetic chemical reaction rate, acid catalysis

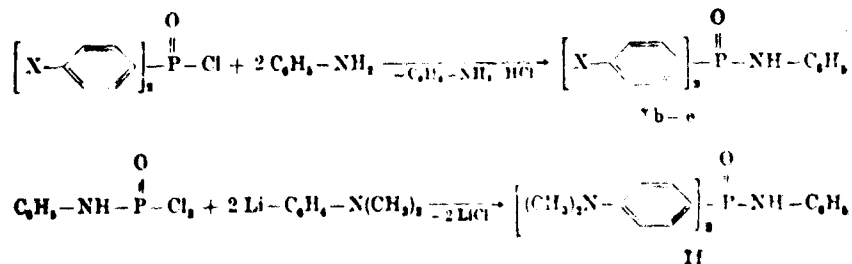
ABSTRACT: The purpose of these studies was to investigate the correlation between the basicity and stability of the P—N bond in accordance with the following sequence. Diarylphosphinic acid anilides (Ib—Ie)



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ACC NR: AP8034741

were synthesized by refluxing the corresponding diarylphosphinic acids with  $\text{SOCl}_2$  for 1 hr with subsequent addition of aniline in benzene. Bis(p-dimethylaminophenyl)phosphinic acid anilide (If) (52% yield, mp 231—232.5°C from 80% EtOH) was obtained by adding dichlorophosphoric acid anilide in ether to p-dimethylaminophenyllithium at -20°C. The



I	a	b	c	d	e	f
X	H	CH <sub>3</sub>	OCH <sub>3</sub>	Cl	NO <sub>2</sub>	N(CH <sub>3</sub> ) <sub>2</sub>

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Table 1

-Phosphinic acid anilide	% Yield	Mp, °C
Bis-[p-methylphenyl] 1b	71	216-216,5
Bis-[p-methoxyphenyl] 1c	67	209,5-211,5
Bis-[p-chlorophenyl] 1d	81	209-209,5
Bis-[p-nitrophenyl] 1e	81	229-231,5

extinction differences of Ia—If and the corresponding hydrolysis products determined by UV spectroscopy are shown in Table 2. The

Table 2. Maximum extinction differences in dioxane/water (75:25 v/v), in 1.175 N HClO<sub>4</sub>, 20°C

Compd	$\lambda \Delta E_{\max}$
Ia	230
b	234
c	244
d	232

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Table 2. (Cont.)

e	232
f	230

activation energies shown in Table 3 were determined from the Arrhenius equation, and the rate constants were determined graphically as shown in Figure 1 for Id. Compounds Ia—If follow the Taft equation rather

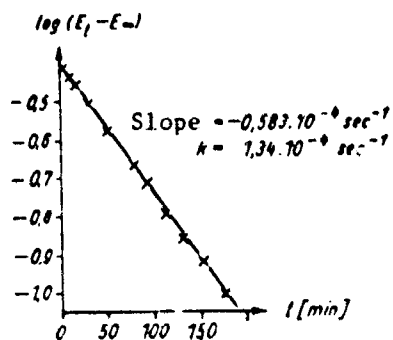


Fig. 1. Graphic determination of rate constants  $k$  of acid-catalyzed hydrolysis of Id at  $35.0 \pm 0.1^\circ\text{C}$  in dioxane/water (75:25 v/v).  $[\text{HClO}_4] = 1.175$  mole/l;  $[\text{anilide}] = 5 \cdot 10^{-5}$  mole/l

ACC NR: AP8034741

Table 3. Rate constants  $k$ , half times  $\tau$ , activation energies and entropies for acid-catalyzed hydrolysis of Ia—If, solvent dioxane/water (75:25 v/v)  
 $c_{\text{HClO}_4} = 1.175 \text{ mole/l}$

Compd	T [°C]	$k \cdot 10^4$ [sec <sup>-1</sup> ]	$\tau$ [sec]	$E^*$ [log-cal/mole]	$S^*$ [cal/(deg-mole)]
Ia	35.2	2.69	2580	17.8	-17.2
Ib	35.0	2.72	2550	17.3	-18.8
Ic	35.3	1.61	4300	19.2	-13.7
Id	35.0	1.36	5100	19.5	-13.1
Ie	35.0	1.02	6800	19.9	-12.3
If	35.2	1.45	4780	20.1	-10.9

than the Hammett equation, as shown by comparing Figures 2 and 3.

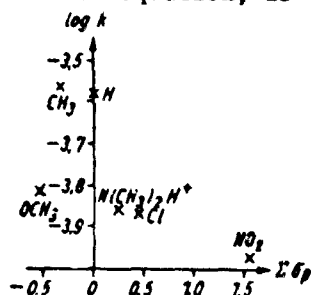


Fig. 2. Relation of  $\log k$  to  $\sigma_p$  (Hammett) for acid-catalyzed hydrolysis of Ia—If in dioxane/water (75:25 v/v) at  $35.0 \pm 0.1^\circ\text{C}$  with a  $\text{HClO}_4$  concentration of 1.175 mole/l

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ACC NR: AP8034741

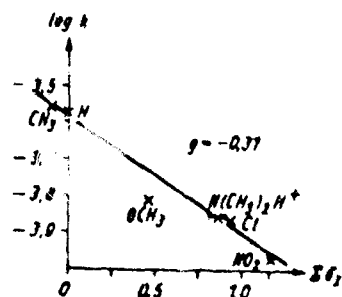


Fig. 3. Relation of  $\log k$  to  $\sigma_I$  (Taft) for acid-catalyzed hydrolysis of Ia—If

Figure 4 indicates that the hydrolysis proceeds by an A-1 mechanism.

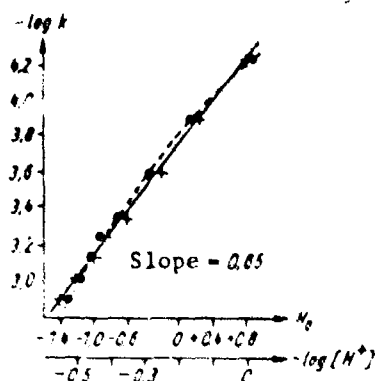


Fig. 4. Rate of acid-catalyzed hydrolysis of Ia—If as a function of  $H_0$  in dioxane/water (60:40 v/v) at  $30.0 \pm 0.1^\circ\text{C}$  (—),  $-\log k$  in relation to  $-\log[H^+]$  (---)

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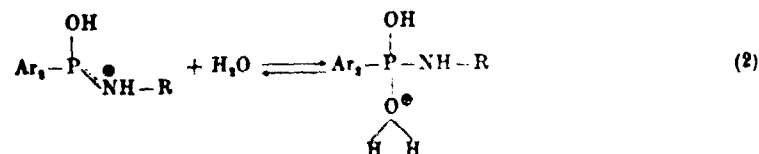
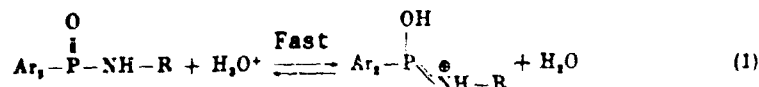
ACC NR: AP8034741

Extrapolation of the values of  $k_H/k_D$  shown in Table 4 to 100%  $D_2O$  yields a value of 0.46, again indicating an A-1 mechanism. The

Table 4. Kinetic  $D_2O$ -solvent-isotope effect in acid-catalyzed hydrolysis of Ia--If in dioxane/ $D_2O$  (60:40 v/v)

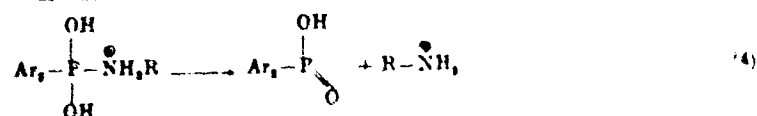
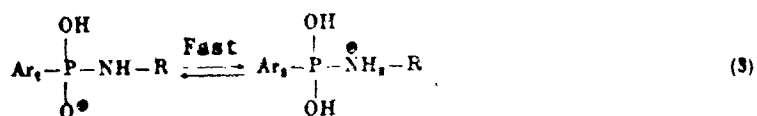
$c_{H_2O^+}$ [Mol/l]		$k \cdot 10^4$ [sec <sup>-1</sup> ]		$k_H/k_D$	T [°C]
$H_2O$	$D_2O$	$H_2O$	$D_2O$		
1.23	1.23	1.49	2.66	0.56	35.0 ± 0.1
1.21	1.22	1.42	2.77	0.51	35.0 ± 0.1
1.26	1.26	1.63	3.04	0.54	35.1 ± 0.1

results shown in Table 4 indicate that steps (1) and (3) in the following equations are not rate-determining. If the nucleophilic attack of



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ACC NR: AP8034741



the water on the protonated substrate (2) is rate determining, the mechanism is A-2. If, however, the bond rupture (4) is rate determining, the mechanism is A-1. The answer remains uncertain. Orig. art. has: 4 figures and 5 tables. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 08Dec67/ ORIG REF: 003/ OTH REF: 014/  
SOV REF: 001

Card 8/8

ACC NR: AP8035548

SOURCE CODE: UR/0079/68/038/010/2344/2344

AUTHOR: Trofimov, B. A.; Atavin, A. S.; Gavrilova, G. M.; Lulavskiy, G. A.

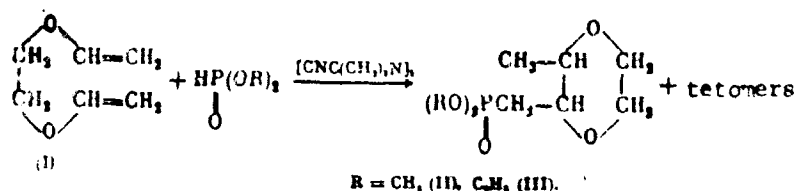
ORG: Irkutsk Institute of Organic Chemistry, Siberian Department,  
Academy of Sciences SSSR (Irkutskiy institut organicheskoy khimii  
Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Cyclization during the homolytic addition of dialkyl phosphites  
to 1,2-bis(vinyloxy)ethane

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2344

TOPIC TAGS: phosphite ester, phosphorous acid derivative, phosphonic  
acid derivative, organic phosphorus compound, cyclization

ABSTRACT: The reaction of 1,2-bis(vinyloxy)ethane with dialkyl phosphites  
in the presence of  $[\text{CNC}(\text{CH}_3)_2\text{N}]_2$  yielded the cyclic 1:1 adducts:



Card 1/2

UDC: 547.26'118

ACC NR: AP8035548

II, bp 129°C (2 mm),  $n_D^{20}$  1.4581,  $d_4^{20}$  1.1975 and III, bp 120--121°C  
(1 mm),  $n_D^{20}$  1.4512,  $d_4^{20}$  1.1240. The formation and structure of the  
cyclic adducts was confirmed by IR and NMR spectra.

[WA-50; CBE No. 38] [PS]

SUB CODE. 07/ SUBM DATE: 15Feb68

Card 2/2

ACC NR: AP8035539

SOURCE CODE: UR/0079/68/038/010/2285/2286

AUTHOR: Tsvetkov, Ye. N.; Lobanov, D. I.; Kabachnik, M. I.

ORG: none

TITLE: Some tri- and pentavalent phosphorus compounds containing a p-chlorophenyl group

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2285-2289

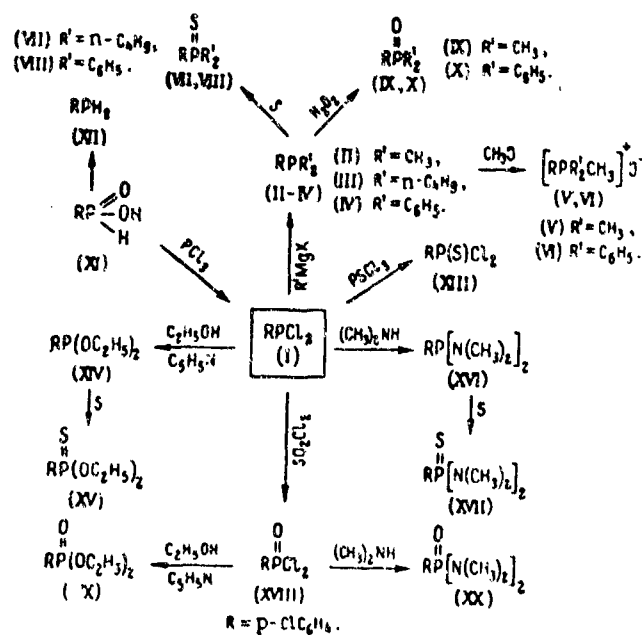
TOPIC TAGS: chlorobenzene, aromatic phosphorus compound, phosphine derivative

ABSTRACT: The title compounds were synthesized to study the electron effect of phosphorus-containing substituents. Dibutyl-p-chlorophenylphosphine (III) was synthesized by adding BuMgBr to p-chlorophenyldichlorophosphine (I) in ether at -60 to -50°C with subsequent heating. Compounds II and IV were similarly prepared. Dimethyl-p-chlorophenylphosphine methiodide (V) was synthesized by adding Me I

Card 1/5

UDC: 546.18:547.539.2

ACC NR: AP8035539



Card 2/5

Table 1  
p-XC<sub>6</sub>H<sub>4</sub>Cl

No.	X	% Yield	Mp, bp (p in mm)	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
I	PCl <sub>2</sub>	86.2	118–119° (12)	1.4440	1.6142
II	P(CH <sub>3</sub> ) <sub>2</sub>	44.8	78–80 (4)	1.1240	1.5785
III	P(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	75.0	144–146 (5)	1.0045	1.5373
IV	P(C <sub>4</sub> H <sub>9</sub> ) <sub>2</sub>	76.5	196–197° (4) 41.5–42.5		
V	[P(CH <sub>3</sub> ) <sub>2</sub> ] <sup>+</sup> I <sup>−</sup>	96.2	265.5–266°		
VI	4[P(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> CH <sub>2</sub> ] <sup>+</sup> I <sup>−</sup> · 3H <sub>2</sub> O	70.0	97.5–98 C <sub>2</sub> H <sub>5</sub> OH)		
VII	P(S)(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	89.1	77.5–78.5 C <sub>2</sub> H <sub>5</sub> OH)		
VIII	P(S)(C <sub>4</sub> H <sub>9</sub> ) <sub>2</sub>	73.2	128–131		
IX	P(O)(CH <sub>3</sub> ) <sub>2</sub>	81.3	165° (4) 124–126°		
X	P(O)(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	89.0	143–144 (30%)		

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Table 1. (Cont.)

XI	P(OH) <sub>2</sub>	58.0	C <sub>2</sub> H <sub>5</sub> OH) 130.5–131.5		
XII	PII <sub>2</sub>	74.0	105–106° (35) 31–32°		
XIII	P(S)Cl <sub>2</sub>	93.1	135 (5)	1.5168	1.6348
XIV	P(OC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	72.3	100–101 (1)	1.1258	1.5252
XV	P(S)(OC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	87.8	134 (4)	1.2075	1.5485
XVI	P[N(CH <sub>3</sub> ) <sub>2</sub> ] <sub>2</sub>	76.4	118 (5)	1.1022	1.5602
XVII	P(S)[N(CH <sub>3</sub> ) <sub>2</sub> ] <sub>2</sub>	93.1	75–77°		
XVIII	P(O)Cl <sub>2</sub>	98.7	152° (15)	1.5070	1.5775
XIX	P(O)(OC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	82.4	143–144 (3)	1.2049	1.5083
XX	P(O)[N(CH <sub>3</sub> ) <sub>2</sub> ] <sub>2</sub>	83.9	152 (4)	1.1897	1.5457

to II in benzene and boiling for 3 hr. Compound VI was similarly prepared. Dibutyl-p-chlorophenylphosphine sulfide (VII) was synthesized by adding S to III in 2-propanol and boiling for 1 hr. Compounds VIII, XV, and XVII were similarly prepared. Dimethyl-p-chlorophenylphosphine oxide (IX) was synthesized by adding 25% H<sub>2</sub>O<sub>2</sub> and water to II in acetone and boiling for 30 min. Compound X was similarly prepared. p-Chlorophenylphosphine (XII) was obtained by thermal disproportionation of XI. p-Chlorophenylthiophosphonyl dichloride (XIII) was synthesized by heating I and PSCl<sub>3</sub> for 4

ACC NR: AP8035539

hr at 110°C. Diethyl p-chlorophenylphosphonite (XIV) was synthesized by adding I in benzene to EtOH and pyridine in benzene with boiling for 1 hr. p-Chlorophenylphosphonous acid tetramethyldiamide (XVI) was synthesized by adding I in ether to Me<sub>2</sub>NH in ether at -15 to -10°C with subsequent addition of petroleum ether. Compound XX was similarly prepared from XVIII, which was obtained by adding SO<sub>2</sub>Cl<sub>2</sub> to I in CCl<sub>4</sub> at -10°C. Orig. art. has: 1 table. [WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 07Aug67/ ORIG REF: 004/ OTH REF: 009

Card 5/5

ACC NR: AP8037903

SOURCE CODE: UR/0020/68/183/001/0095/0098

AUTHOR: Vasil'yev, A. F.; Vilkov, L. V.; Ignatova, N. P.; Mel'nikov, I. N.; Negrebetskiy, V. V.; Shvetsov-Shilovskiy, N. I.

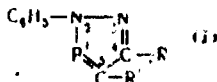
ORG: All-Union Scientific Research Institute of Chemicals for Plant Protection (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)

TITLE: Study of the structure of some products of the reaction of phenylhydrazones with phosphorus trichloride

SOURCE: AN SSSR. Doklady, v. 183, no. 1, 1968, 95-98

TOPIC TAGS: vibration spectrum, electron spectrum, nuclear magnetic resonance, organic azole compound, heterocyclic phosphorus compound

ABSTRACT: A study was made of the vibrational, electron, and NMR spectra of 2-phenyl-4,5-disubstituted-1-phospha-2,3-diazoles (I) which are products of the reaction of phenylhydrazones of Me<sub>2</sub>CO, MeEtCO, MePrCO, MeBuCO, HAc with PCl<sub>3</sub>. The structural formula (I) was confirmed



Card 1/2

UDC: 541.6

NR: AP8037903

by the obtained data. The stabilization of I is determined by the delocalization of the electrons in the phosphadiazine ring, as in the case of phosphabenzene derivatives and phosphamethinocyanines. Presented by Academician B. A. Arbuzov, 7 May 68. Orig. art. has 3 figures and 2 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 30Apr68/ ORIG REF: 006/ OTH RFF: 006

Card 2/2

ACC NR: AP8034818

SOURCE CODE: UR/0450/68/002/010/0031/0034

AUTHOR: Vereshchagin, L. I.; Kamkevich, R. I.; Giller, S. A.; Venter, K. K.; Alekseyeva, L. N.; Kruzmetra, L. V.; Zile, A. Ya.; Glazunova, N. P.

ORG: Institute of Petroleum and Coal Chemical Synthesis, Irkutsk University im. A. A. Zhdanov (Institut nefte- i uglekhimicheskogo sinteza pri Irkutskom universitete); Institute of Organic Synthesis AN LatSSR, Riga (Institut organicheskogo sinteza AN LatSSR); Irkutsk Medical Institute (Irkutskiy meditsinskiy institut)

TITLE: Synthesis and antibiotic properties of some nitro furylacetylene compounds

SOURCE: Khimiko-farmatsevticheskiy zhurnal, v. 2, no. 10, 1968, 31-34

TOPIC TAGS: acetylene compound, furan compound, bactericide, anti-biotically active compound

ABSTRACT:  $\alpha$ -Phenyl- $\beta$ -5-nitro-2-furylacetylene (I) (47.6% yield, mp 110—112°C),  $\alpha$ -p-tolyl- $\beta$ -5-nitro-2-furylacetylene (II) (25.4% yield, mp 111—112°C),  $\alpha$ -anisyl- $\beta$ -5-nitro-2-furylacetylene (III) (26.5% yield, mp 112—113°C),  $\alpha$ -p-ethylphenyl- $\beta$ -5-nitro-2-furylacetylene (IV) 28.9% yield, mp 56.5—57.5°C),  $\alpha$ -m-bromophenyl- $\beta$ -5-nitro-2-furylacetylene (V) (22.3% yield, mp 107—108°C), and  $\alpha$ -2-thienyl- $\beta$ -5-nitro-2-furylacetylene

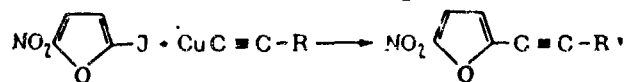
Card 1/3

UDC: 615.281:547.722.5



ACC NR: AP8034818

(VI) (28.4% yield, mp 113.5—115.5°C) were synthesized by adding 0.0012 mole copper aryl- or thienylacetylenide and a small amount of Cu powder to 0.001 mole 5-nitro-2-iodofuran in HCONMe<sub>2</sub> and boiling for 3—4 hr in



R = C<sub>6</sub>H<sub>5</sub>, p-CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>, p-C<sub>6</sub>H<sub>4</sub>OCH<sub>3</sub>,  
p-C<sub>6</sub>H<sub>4</sub>C<sub>2</sub>H<sub>5</sub>, p-C<sub>6</sub>H<sub>4</sub>Br 2-thienyl

Table 1

Compd.	Minimum antibacterial concentration (in ug/ml)								Minimum concen- tration inhibiting growth of pathogenic fungi (in ug/ml)				
	E. coli 875		Prot. vulgaris		Pyocyanus 165		Staph. aureus haemol. 209		Bac. mycoides 537		Candide albicans 64/846	Epidermophyton Kaufmann Wolf 41	Trychophyton gyp- seum 4/3
	24 hr	96 hr	24 hr	96 hr	24 hr	96 hr	24 hr	96 hr	24 hr	96 hr			
I			V	V	V	V	2.3	1.1	33.3	33.3			
III	2.08	2.08	V	V	V	V	2.7	11.0	2.7	22.0	33.3		15.8
IV	50	V	V	V	33.3	V	V	44.6	V	44.6	33.3		10.3
V	25	100	V	V	33.3	V	0.7	0.7	0.7	1.4	33.3		55.6
VI	1.99	V	V	V	V	V	1.1	1.1	1.1	1.4	33.3		15.6

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ACC NR: AP8034818

a stream of N. Antibiotic data are shown in Table 1. Compound V is effective against *Staph. aureus* and *Bac. mycoides*. Orig. art. has: 2 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 26Apr68/ ORIG REF: 005/ OTH REF: 002

Card 3/3

ACC NR: AP8034022

SOURCE CODE: CZ/9000/68/033/009/3044/3048

AUTHOR: Volke, J.

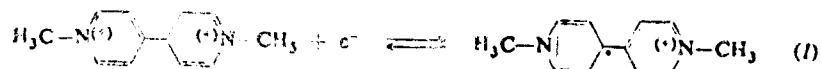
ORG: J. Heyrovsky' Institute of Polarography, Czechoslovak Academy of Sciences, Prague 1

TITLE: The relationship between herbicidal activity and electrochemical properties of quaternary bipyridylum salts

SOURCE: Collection of Czechoslovak chemical communications, v. 33, no. 9, 1968, 3044-3048

TOPIC TAGS: steric hindrance, polarography, oxidation reduction reaction

ABSTRACT: The herbicidal activity of Paraquat (I) is primarily due to the ability of its free radical to be rapidly re-oxidized to the starting compound, this process initiating the formation of peroxide radicals or  $H_2O_2$  by a series of chain reactions. Phytotoxicity decreased in III and



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ACC NR: AP8034022

IV (see Table 1), where steric hindrance prevents coplanarity of the pyridine rings, decreases the reversibility of the reduction, and shifts the halfwave potential of the first one-electron wave to more negative values. As shown in Figure 1, a small discontinuous reduction wave

Table 1

	Compound	$E_{1/2}$ (s.c.f), V (this paper)	$E^*$ (s.c.s), V (according to <sup>1</sup> )
I	1,1'-Dimethyl-4,4'- bipyridylum diiodide (paraquat)	-0.69	-0.715
II	1,1'-Ethylene-2,2'- bipyridylum diiodide (diquat)	-0.61	-0.615
III	1,1'-Trimethylene-2,2'- bipyridylum diiodide	-0.80	-0.815
IV	1,1'-Tetramethylene-2,2'- bipyridylum diiodide	-0.88	-

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ACC NR: AP8034022

appears before the reversible one-electron wave in the polarographic curve of benzyi viologen (V) (the salt of the 1,1-dibenzyl-4,4'-bipyridylum cation). The inactivity of V is probably related to the

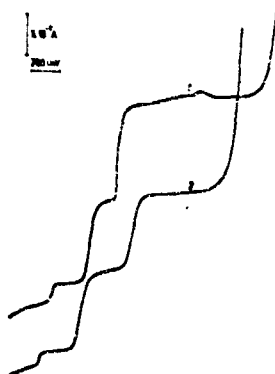


FIG. 1  
Polarographic Curves of Benzyl Viologen and Morphamquat  
 $5 \cdot 10^{-4}$  M depolarizer, aqueous phosphate buffer pH 6.3,  
both curves start at 0 V vs. S.C.E.  
1 Benzyl Viologen, 2 Morphamquat.

very positive position of its most negative reduction wave, measured with a dropping electrode as shown in Table 2, where Morphamquat is 1.1-bis(3,5-dimethylmorpholinocarbamylmethyl)-4,4'-bipyridylum

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Table 2

Substance	Conc. $\text{mol l}^{-1}$	$E_{ad}$ V	$(E_{1/2})_1$ V	$(E_{1/2})_2$ V	$(E_{1/2})_1 - (E_{1/2})_2$ mV
Morphamquat	$2 \cdot 10^{-4}$	-0.26	-0.54	-0.885	345
	$5 \cdot 10^{-4}$	-0.235	-0.535	-0.895	360
	$1 \cdot 10^{-3}$	-0.235	-0.535	-0.91	370
Benzyi viologen	$2 \cdot 10^{-4}$	-0.345	-0.62	-0.845	225
	$5 \cdot 10^{-4}$	-0.335	-0.585	-0.78	195
	$1 \cdot 10^{-3}$	-0.33	-0.58	-0.765	185

dichloride. It is probable that the active, primary radical of V is further reduced and is thus finally eliminated from the biochemical process. The author is most indebted for gifts of the herbicides studied in this paper to Dr. A. J. Farrington (Jealott's Hill Research Station, Plant Protection Ltd., Bracknell, Berks.) and of pure samples of methyl and benzyl viologen to Prof. H. Oelschlager, Frankfurt am Main, and to Dr. F. W. Steuber, Marburg a. d. L. [Original article in English] Orig. art. has: 2 tables and 1 figure. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 01Sep67/ ORIG REF: 002/ OTH REF: 006

Card 4/4

ACC NR: AP8037859

SOURCE CODE: UR/0409/68/000/005/0881/0886

AUTHOR: Yakhontov, L. N.; Mastafanova, L. I.; Turchin, E. I.;  
Pervacheva, T. D.; Rubtsov, M. V. (deceased)

ORG: All-Union Scientific Research Chemical Pharmaceuticals Institute im.  
S. Ordzhonikidze, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy khimiko-  
farmatsevticheskiy institut)

TITLE: Synthesis and stereochemistry of 5-substituted quinuclidine-2-carboxylic acids with a heptacyclic double bond

SOURCE: Khimiya geterotsiklicheskih soyedineniy, no. 5, 1968, 881-886

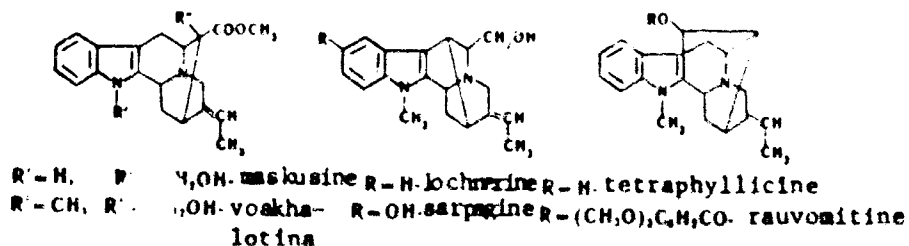
TOPIC TAGS: aliphatic ester, carboxylic acid, stereochemistry,  
quinuclidine

ABSTRACT: Derivatives of quinuclidine-2-carboxylic acid with MeCH: in  
the 5 position are components of a series of natural alkaloids of the  
makusine group. The title compounds are of interest as possible inter-  
mediates for the synthesis of sarpagine, lochnerine, tetraphyllicine,  
rauvomitine, etc. Methyl 5-ketoquinuclidine-2-carboxylate (I) was

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UDC: 547.834.4.07:541.63'67

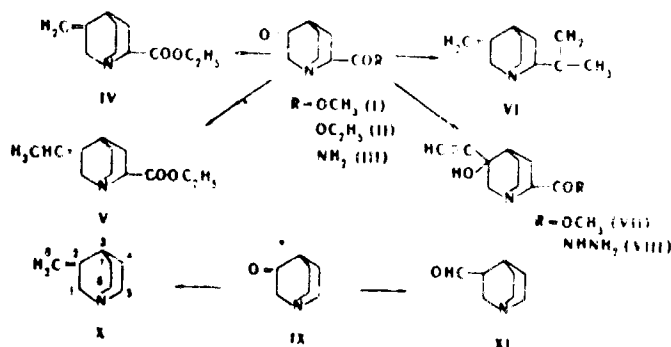
ACC NR: AP8037859



prepared by repeatedly boiling 5-ketoquinuclidine-2-carboxylic acid  
hydrochloride for 3 hr with HCl and MeOH. Colorless ethyl 5-ketoqui-  
nuclidine-2-carboxylate (II) (84.4% yield, bp<sub>0.8</sub> 107-108°C, n<sub>D</sub><sup>20</sup> 1.4800)  
was similarly prepared. 5-Ketoquinuclidine-2-carboxylic acid amide (III)  
(8.1% yield, mp 130-131°C) was obtained by the ammonolysis of I. Color-  
less ethyl 5-methylenequinuclidine-2-carboxylate (IV) (13.5% yield, bp<sub>1</sub>  
86-87°C, n<sub>D</sub><sup>20</sup> 1.4895) was synthesized by adding I in ether to triphenyl-  
methylphosphonium bromide and NaNH<sub>2</sub> in ether and NH<sub>4</sub>OH and boiling for  
6 hr and for 5 hr more after extraction with 10% HCl. Colorless ethyl

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ACC NR: AP8037859



5-ethylidenequinoclidine-2-carboxylate (V) (48.1% yield,  $bp_5$  124—125°C,  $n_D^{20}$  1.4854) was similarly prepared from triphenylethylphosphonium bromide. Colorless 2-isopropylene-5-methylenequinoclidine (VI) (18.3% yield,  $bp_{10}$  86—87°C,  $n_D^{20}$  1.4965) was similarly prepared from triphenylmethylphosphonium bromide. Colorless methyl 5-hydroxy-5-ethynylquinoclidine-2-carboxylate (VII) (15.8% yield,  $bp_{0.3}$  130—132°C,  $n_D^{20}$  1.5120) was obtained by adding I in ether to Na acetylenide and boiling in MeOH and HCl for 4 hr three times. 5-Hydroxy-5-ethynylquinoclidine-2-carboxylic acid hydrazide (VIII) (100% yield, mp 111—112°C) was obtained by boiling VII and hydrazine hydrate for 5 hr in EtOH. Colorless 3-methylenequinoclidine (X) (67.2% yield,  $bp_{15}$  59—61°C,  $n_D^{20}$  1.4930) was prepared

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ACC NR: AP8037859

by adding 3-quinoclidone (IX) to  $NaNH_2$  and triphenylmethylphosphonium bromide in  $NH_4OH$  and ether and stirring for 1 hr and boiling for 2 hr. Volatile 3-formylquinoclidine (XI) (74.4% yield,  $bp_8$  93—96°C) was prepared by adding IX in ether to  $PhLi$  and methoxymethylenetriphenylphosphonium chloride in ether and stirring for 2 hr and boiling for 1 hr. The stereochemistry of IV and V was studied by NMR spectroscopy. [WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 14Jul66/ ORIG REF: 007/ OTH REF: 002

Card 4/4

ACC NR: AP8035545

SOURCE CODE: UR/0079/68/038/010/2341/2342

AUTHOR: Yevtikhov, Zh. L.; Pazumova, N. A.; Petrov, A. A.

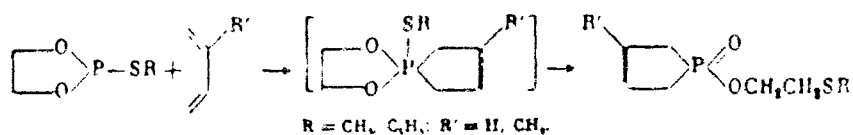
ORG: Leningrad Technological Institute im. Lensovet (Leningradskiy tekhnologicheskii institut)

TITLE: Reaction of thio esters of glycolphosphorous acids with 1,3-diene hydrocarbons

SOURCE: Zhurnal obshchei khimii, v. 38, no. 10, 1968, 2341-2342

TOPIC TAGS: organic phosphorus compound, organic sulfur compound, phosphorous acid

ABSTRACT: Thio esters of glycolphosphorous acids reacted readily (in sealed tubes at 80--90°C) with 1,3-diene hydrocarbons to form (65--70%) 8-alkylthioalkylphospholine oxides:



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UDC: 547.341

ACC NR: AP8035545

8-methylthio-1-ethoxy-3-phospholine oxide, bp 114°C (1.0 mm),  $d_4^{20}$  1.2201 and 8-ethylthio-1-ethoxy-3-methylphospholine oxide, bp 125°C (1.0 mm),  $d_4^{20}$  1.1406. Their structure was confirmed by IR and NMR spectra. [WA-50; CBE No. 38] [PS]

SUB CODE: 07/ SUBM DATE: 07Mar68/ ORIG REF: 001/ OTH REF: 001

Card 2/2

ACC NR: AP8035536

SOURCE CODE: UR/0079/68/038/010/2271/2276

AUTHOR: Zavalishina, A. I.; Sorokina, S. F.; Nifant'yev, E. Ye.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Synthesis and oxidative ethyleneimidation of incomplete di- and polyphosphites and phosphonites

SOURCE: Zhurnal obshchey khimii, v. 38, no. 1, 1968, 2271-2276

TOPIC TAGS: phosphorous acid derivative, cancer drug, phosphonite ester, phosphite ester

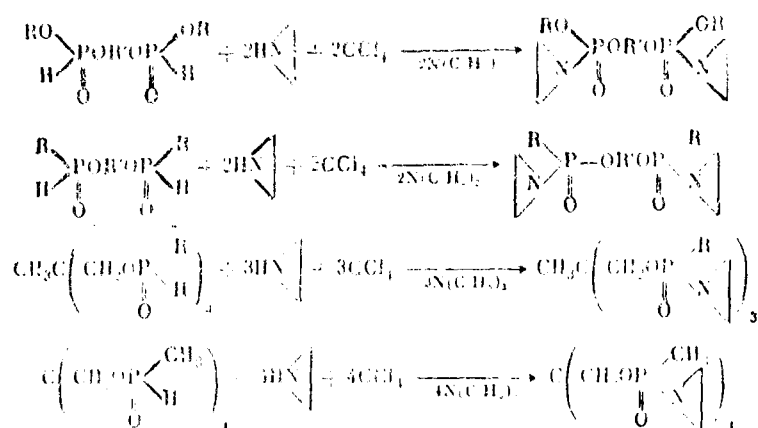
ABSTRACT: 1,2-Bis(methylethyleneimidophosphonatoxy)ethane (I), 1,5-bis(methylethyleneimidophosphonatoxy)pentane (II),  $\alpha,\omega$ -bis(methylethyleneimidophosphatoxy)alkanes (III—VI), bis(methylethyleneimidophosphatoxyethyl)oxide (VII), 1,1,1-tris(methylethyleneimidophosphonatoxymethyl)ethane (VIII), 1,1,1-tris(ethylethyleneimidophosphatoxymethyl)ethane (IX), and tetrakis(methylethyleneimidophosphonatoxymethyl)methane (X), of interest as cancerolytic and insect sexual sterilant compounds, were synthesized by adding 0.05 mole bisphosphonite or bisphosphite, or 0.33 mole trisphosphonite or trisphosphite, or 0.25

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UDC: 547.26'118

ACC NR: AP8035536

mole tetrakisphosphonite in 40—50 ml solvent to 0.1 mole ethyleneimine, 0.1 mole  $\text{Et}_3\text{N}$ , and 0.1 mole  $\text{CCl}_4$  at 0—10°C with stirring for 2 hr. To



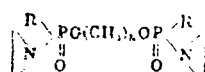
avoid polymerization, V, VI, and VIII—X were isolated chromatographically in a column of  $\text{Al}_2\text{O}_3$  with benzene, benzene- $\text{CHCl}_3$  1:1, and  $\text{CHCl}_3$ . For III, IV, and VII, the  $\text{Al}_2\text{O}_3$  was impregnated with 8% ethylene

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ACC NR: AP8035536

glycol (in acetone), and the solvents were benzene and 1,1,2,2-tetrachloroethane.

Table 1



Compd	R	n	% Yield after purification	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>
I	CH <sub>3</sub>	2	50*	1.2580	1.4315
II	CH <sub>3</sub>	5	60**	1.2508	1.4892
III	CH <sub>3</sub> O	2	90	1.2561	1.4778
IV	CH <sub>3</sub> O	3	67	1.2525	1.4731
V	CH <sub>3</sub> O	4	***	—	—
VI	CH <sub>3</sub> O	5	57.7	1.2280	1.4682
VII	$\begin{array}{c} \text{CH}_3\text{O} \quad \text{C} \text{---} \text{OCH}_3 \\ \diagdown \quad \diagup \\ \text{N} \quad \text{P} \text{---} \text{O} \text{---} \text{C} \text{---} \text{O} \text{---} \text{P} \text{---} \text{O} \text{---} \text{N} \\ \diagup \quad \diagdown \quad \diagup \quad \diagdown \\ \text{O} \quad \text{O} \quad \text{O} \quad \text{O} \end{array}$		30	1.2480	1.4958

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ACC NR: AP8035536

Table 1. (Cont.)

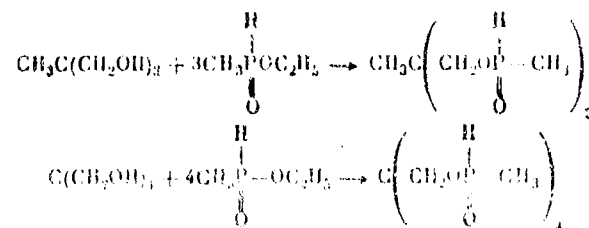
VIII	$\text{CH}_3\text{C} \left( \begin{array}{c} \text{CH}_3\text{OP} \\ \diagdown \quad \diagup \\ \text{O} \quad \text{N} \end{array} \right)_2$	—	—	1.4892
IX	$\text{CH}_3\text{C} \left( \begin{array}{c} \text{CH}_3\text{OP} \\ \diagdown \quad \diagup \\ \text{O} \quad \text{N} \end{array} \right)_2$	56.5	1.2580	1.4830
X	$\text{C} \left( \begin{array}{c} \text{CH}_3\text{OP} \\ \diagdown \quad \diagup \\ \text{O} \quad \text{N} \end{array} \right)_4$	75	—	1.4900

\* Distilled at bath temp. 150—160°C (10<sup>-4</sup> mm).

\*\* Bath temp. 175—185°C (10<sup>-4</sup> mm).

\*\*\* Mp ~35—38°C.

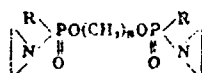
1,2-Bis(methylbiphosphonitoxymethyl)ethane (XI), 1,5-bis(methylbiphosphonitoxymethyl)pentane (XII), 1,1,1-tris(methylbiphosphonitoxymethyl)ethane (XIX), and tetrakis(methylbiphosphonitoxymethyl)methane (XX) were prepared by known procedures. α,ω-Bis(alkylbiphosphitoxymethyl)alkanes



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Table 2



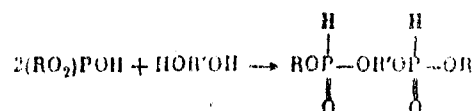
No.	R	n	Reaction temp, °C	% Yield after distillation	Bp (in bath) (p in mm)	$d_4^{20}$	$n_D^{20}$
XI	CH <sub>3</sub>	2	130—140°	60	120—125° (10 <sup>-3</sup> )	1.2850	1.4725
XII	CH <sub>3</sub>	5	135—140	59	140—155 (10 <sup>-4</sup> )	1.1675	1.4995
XIII	CH <sub>3</sub> O	2	140—150	73	110—120 (10 <sup>-4</sup> )	1.4136	1.4541
XIV	C <sub>2</sub> H <sub>5</sub> O	2	135—140	70	115—120 (10 <sup>-3</sup> )	1.2996	1.4485
XV	CH <sub>3</sub> O	3	140—150	67	100—110 (10 <sup>-4</sup> )	1.3236	1.4475
XVI	CH <sub>3</sub> C	4	136—140	70	120—130 (10 <sup>-4</sup> )	1.2840	1.4450
XVII	CH <sub>3</sub> O	5	144—145	—	—	—	1.4498
XVIII	CH <sub>3</sub> O	6	140—150	60	130—150 (10 <sup>-4</sup> )	1.2070	1.4481
XIX	CH <sub>3</sub> C(CH <sub>3</sub> OP(=O)(H)CH <sub>3</sub> ) <sub>2</sub>		140—160	70	180—190 (10 <sup>-4</sup> )	—	1.4860

Card 5/7

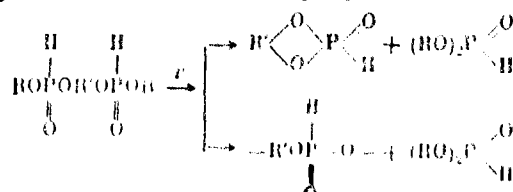
Table 2. (Cont.)

XX	C(CH <sub>3</sub> OP(=O)(H)CH <sub>3</sub> ) <sub>2</sub>	150—165	30	190—200 (10 <sup>-4</sup> )	—	1.4930
XXI	CH <sub>3</sub> OPO(=O)(CH <sub>2</sub> ) <sub>2</sub> OCH <sub>3</sub>	150—170	—	—	—	1.4589
XXII	CH <sub>3</sub> C(CH <sub>3</sub> OP(=O)(H)OC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	150—160	—	—	1.2754	1.4550

(XIII—XVIII) and bis(methylbiphosphitoxyethyl)oxide (XXI) were synthesized by heating excess dialkyl phosphite with the corresponding glycols and a small amount of Na in inert gas at 140—160°C. Care



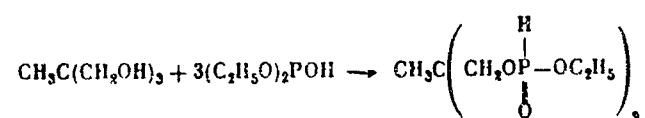
was used to avoid the formation of side products. 1,1,1-Tris(ethylbiphosphitoxymethyl)ethane (XXII) was prepared from metriol and diethyl



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ACC NR: AP8035536

phosphite. Compounds XI—XXII are colorless liquids, soluble in water,



$\text{CHCl}_3$ ,  $\text{CCl}_4$ , dioxane, and acetone. Orig. art. has: 2 tables.

[WA-50; CBE No. 38][FT]

SUB CODE: 07/ SUBM DATE: 21Dec67/ ORIG REF: 004/ OTH REF: 001

Card 7/7

ACC NR: AP8037581

SOURCE CODE: UR/0394/68/006/011/0041/0044

AUTHOR: Zhirmunskaya, N. M.; Stonov, L. D.

ORG: VNII of Chemicals for Plant Protection (VNII khimicheskikh sredstv zashchity rasteniy)

TITLE: Some questions concerning the interaction of an Atrazine suspension with soil

SOURCE: Khimiya v sel'skom khozyaystve, v. 6, no. 11, 1968, 41-44

TOPIC TAGS: solution kinetics, soil type, desorption, herbicide, triazine derivative

ABSTRACT: The solubility of suspended Atrazine (I), the properties of the adsorbent (soil), and the kinetics of the adsorption-desorption processes were studied with respect to the following scheme: suspension of I  $\xrightleftharpoons[\text{condensation}]{\text{dissolution}}$  solution of I  $\xrightleftharpoons[\text{desorption}]{\text{adsorption}}$  adsorbed I. Answers were

sought to the questions: how is I adsorbed from suspension, how long does I remain in the soil in the form of solid particles, how fast does I dissolve, how does particle size (dispersion) affect dissolution, and is it possible to control the plant intake of I without changing the

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UDC: 632.954

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ACC NR: AP8037581

suspension properties. The solubility of I (with the particle diameters indicated) suspended in a stream of water is shown in Fig. 1. The rate

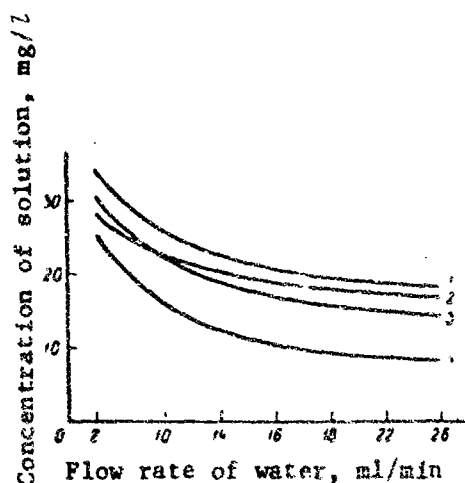


Fig. 1. 1 -  $<40 \mu$  + polyethylene glycol (II); 2 -  $<40 \mu$  without II; 3 -  $>200 \mu$  + II; 4 -  $>200 \mu$  without II

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ACC NR: AP8037581

of dissolution of I (with the particle diameters indicated) suspended in a stream of water is shown in Fig. 2. The kinetics of the adsorption and desorption of I by soddy podzol soil is shown in Fig. 3. The relative

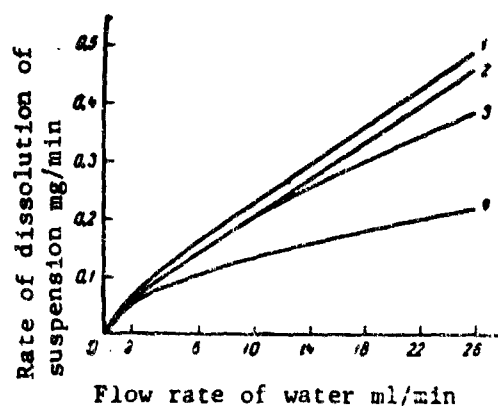


Fig. 2. 1 -  $<40 \mu$  + II; 2 -  $<40 \mu$  without II; 3 -  $>200 \mu$  + II; 4 -  $>200 \mu$  without II

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ACC NR: AP8037581

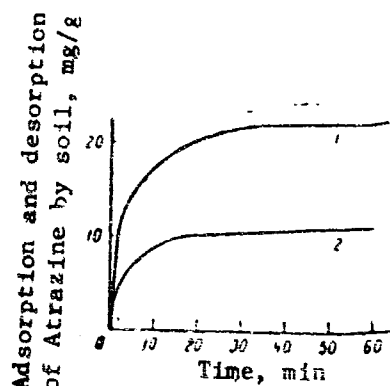


Fig. 3. 1 - amount of adsorbed I;  
2 - amount of desorbed I

rates of adsorption (1) and desorption (2) of I by soddy podzol soil are shown in Fig. 4. The ability of soddy podzol soil (5 g) to adsorb I is shown in Table 1. Since I is a pregermination herbicide, several days must usually pass after its application for the root system of sprouts to assimilate it. By this time, no solid herbicide particles remain in the soil, since I is completely adsorbed or goes into solution. Therefore, the availability of I to plants is determined only by the

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ACC NR: AP8037581

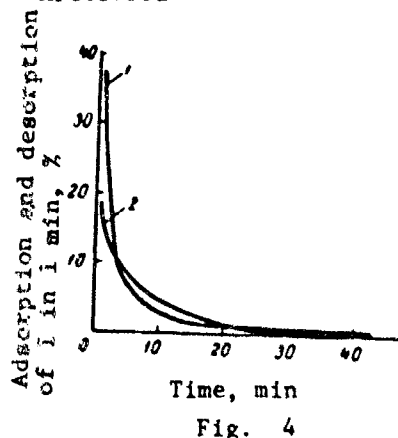


Fig. 4

Table 1

Nc. of times soil was saturated or washed (with 50 ml H <sub>2</sub> O)	Adsorbed I, mg/g	Desorbed I, mg/g
1	15.6	14.06
2	3.3	5.24
3	3.4	0.0
4	3.8	—
5	3.5	—
6	2.2	—
7	0.0	—
Total . . .	31.8	19.3

adsorption-desorption processes, which depend on the soil and meteorological conditions. The properties of the suspension of I, e.g., particle dispersion, do not affect the availability of I to plants. Orig. art. has: 4 figures and 3 tables. [WA-50; CBE No. 38] [FT]

SUB CODE: 02/ SUBM DATE: 04Apr68/ ORIG REF: 004/ OTH REF: 008

Card 5/5

ACC NR: AP8035550

SOURCE CODE: UR/0079/68/038/010/2346/2347

AUTHOR: Zhuravleva, L. P.; Kirsanov, A. V.; Suleymanova, M. G.;  
Kovalyukh, N. N.; Fedorova, G. K.; Shaturskiy, Ya. P.

ORG: Institute of Organic Chemistry, Academy of Sciences UkrSSR  
(Institut organicheskoy khimii akademii nauk SSSR)

TITLE: Hydrogenation of organophosphorus compounds having styryl and phenylacetylene radicals

SOURCE: Zhurnal obshchey khimii, v. 38, no. 10, 1968, 2346-2347

TOPIC TAGS: alkylphosphine oxide, phosphine oxide derivative, phosphonic acid derivative, phosphinic acid derivative, organic phosphorus compound

ABSTRACT: Unsaturated derivatives of phosphine oxide and of phosphinic and phosphonic acids were hydrogenated on platinum catalyst in glacial acetic acid at 70-100 atm to form the corresponding saturated compounds

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UDC: 547.341

ACC NR: AP8035550

Starting compound	Hydrogenation conditions		Hydrogenation products	Yield	Mp, °C
	Time (hr)	Temperature			
$C_6H_5CH=CHPO(OH)_2$	5-6	120	$C_6H_{11}CH_2CH_2PO(OH)_2$	86	156-157°
$(C_6H_5CH=CH)(C_6H_5)POOH$	7-8	100-110	$(C_6H_{11}CH_2CH_2)(C_6H_5)POOH$	91	111-112
$(C_6H_5C\equiv C)(C_6H_5)POOH$ [2]	5-6	100-110		87	
$(C_6H_5CH=CH)_2POOH$	2-3	80	$(C_6H_{11}CH_2CH_2)_2POOH$	90	124-125
$(C_6H_5C\equiv C)_2POOH$ [2]	2	20		95	
$C_6H_5CH=CH-CH=CH \begin{matrix} \diagup POOH \\ \diagdown C_6H_5CH=CH \end{matrix}$	1	40-50	$C_6H_{11}CH_2CH_2CH_2CH_2 \begin{matrix} \diagup POOH \\ \diagdown C_6H_{11}CH_2CH_2 \end{matrix}$	93	63-61°
$(C_6H_5CH=CH)_2(C_6H_5)PO^{**}$	3-4	100	$(C_6H_{11}CH_2CH_2)_2(C_6H_5)PO$	85	121-122
$C_6H_5CH=CH_2PO$	1-2	40-50	$(C_6H_{11}CH_2CH_2)_2PO$	94	174-175

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ACC NR: AP8035550

which are listed in the table along with the initial unsaturated compounds and the hydrogenation conditions. [WA-50; CBE No. 38] [PS]

SUB CODE: 07/ SUBM DATE: 02Apr68/ ORIG REF: 004/ OIL REF: 001

Card 3/3

ACC NR: AP8037731

SOURCE CODE: UR/0073/68/034/011/1151/1155

AUTHOR: Zubarovskiy, V. M.; Makovetskiy, Yu. P.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: New derivatives of benzimidazole: benzimidazolybenzimidazoles

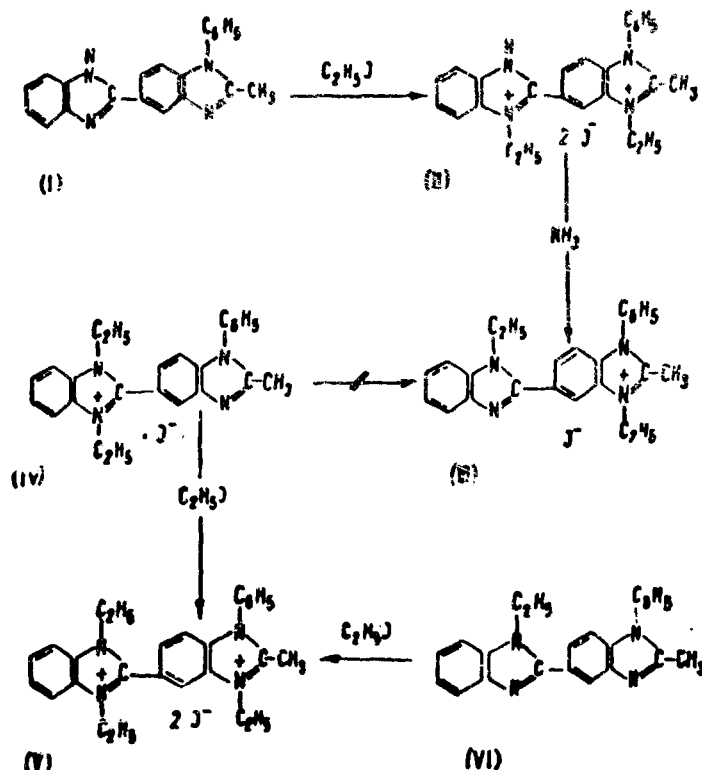
SOURCE: Ukrainskiy khimicheskij zhurnal, v. 34, no. 11, 1968, 1151-1155

TOPIC TAGS: dyestuff, benzimidazole derivative, benzimidazole

ABSTRACT: The title compounds were synthesized in connection with the synthesis of imidacyanine dyes. Grayish-white crystalline 1-phenyl-2-methyl-5-(2-benzimidazolyl)benzimidazole (I) (43.8% yield, mp 312—313°C) was synthesized by heating 1-phenyl-2-methylbenzimidazole-5-carboxylic acid with o-phenylenediamine for 4 hr at 255—260°C.

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UDC: 547.785.5+542.95  
- 141 -

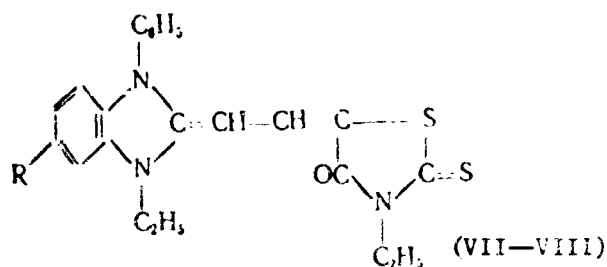


Card 2/6

Yellowish II (80% yield, mp  $260^{\circ}C$ ) was obtained by heating I with nitrobenzene and EtI for 2 hr at  $150^{\circ}C$ . Compound III (0.5 g from 2 g II, mp  $290-291^{\circ}C$ , decomposes) was obtained by adding  $NH_3$  to II in hot  $H_2O$  and cooling for 1 hr at  $0^{\circ}C$ . Colorless acicular IV (43% yield, mp  $255-256^{\circ}C$ ) was obtained by adding boiling N,N'-diethyl-o-phenylenediamine in MePh to 1-phenyl-2-methylbenzimidazole-5-carboxylic acid chloride hydrochloride and boiling for 1-2 min and cooling. Yellowish imidacarbocyanine (mp  $150-180^{\circ}C$ ) was formed when IV was heated for 7 min at  $275^{\circ}C$ . Yellowish V (67.5% yield, mp  $287-288^{\circ}C$ , decomposes) was prepared by heating IV,  $PhNO_2$  and EtI for 3.5 hr at  $98-100^{\circ}C$ . Colorless acicular VI (35.5% yield, mp  $107-11^{\circ}C$ ) was prepared by heating N-ethyl-o-phenylenediamine, 1-phenyl-2-methylbenzimidazole-5-carboxylic acid, and 20% HCl for 3 hr at  $195-200^{\circ}C$ . Symmetric imidacarbocyanine was formed when VI was heated with  $PhNO_2$  and EtI for 2 hr at  $140^{\circ}C$ . Red 3-ethyl-5-([1-phenyl-3-ethyl-5-(1-ethyl-2-benzimidazolyl)benzamido]in-2-ylidene)ethylidene rhodanine (VII) (60.5% yield, mp  $258^{\circ}C$ ) was synthesized by boiling III, 3-ethyl-5-acetanilidomethylene rhodanide, EtOH, and  $Et_3N$  for 2 hr. Dark red VIII

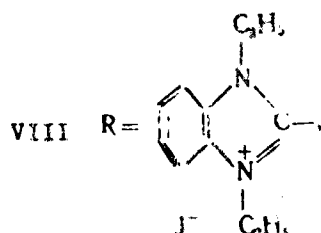
Card 3/6

ACC NR: AP8037731



VII R = 1-ethyl-2-benzimidazolyl

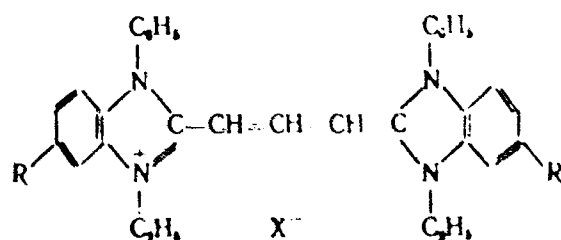
(50% yield, mp 293—294°C, decomposes) was similarly prepared from V.



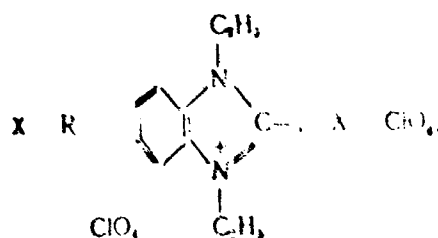
Dark red bis(1-phenyl-3-ethyl-5-[1-ethyl-2-benzimidazolyl])-imida carbocyanine iodide (IX) (10% yield, mp 281—283°C) was obtained by heating III, PhNO<sub>2</sub>, and CH(OEt)<sub>2</sub> at 200°C for 3 hr. Red X (11% yield,

Cord 4/6

ACC NR: AP8037731



IX R = 1-ethyl-2-benzimidazolyl



Cord 5/6



ACC NR: AP8037731

mp 215°C, decomposes) was similarly prepared from V.

[WA-50; CBE No. 38] [FT]

SUB CODE: 07/ SUBM DATE: 09Dec66/ ORIG REF: 004/ OTH REF: 002

Card 6/6

# ACCESSION NUMBERS FOR CHEMICAL FACTORS

AP9000878	AP9001944	AP9002321
AP9000879	AP9001945	AP9002323
AP9001344	AP9001947	AP9002324
AP9001345	AP9002307	AP9002325
AP9001346	AP9002308	AP9002326
AP9001927	AP9002309	AP9002327
AP9001929	AP9002310	AP9002328
AP9001930	AP9002311	AP9002329
AP9001931	AP9002312	AP9002330
AP9001932	AP9002313	AP9002331
AP9001933	AP9002314	AP9002332
AP9001934	AP9002315	AP9002333
AP9001935	AP9002316	AP9002334
AP9001937	AP9002317	AP9002336
AP9001940	AP9002318	AP9002337
AP9001941	AP9002319	AP9002338
AP9001942	AP9002320	AP9002404

## **II. BIOLOGICAL FACTORS**

ACC NR: AP8033938

SOURCE CODE: UR/0402/68/000/005/0585/0588

AUTHOR: Akopova, I. I.; Alekseyeva, A. K.

ORG: Moscow Scientific Research Institute of Viral Preparations  
(Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov)

TITLE: Antigenic structure of hemadsorbing simian viruses isolated  
from *Macaca rhesus* monkey kidneys

SOURCE: Voprosy virusologii, no. 5, 1968, 585-588

TOPIC TAGS: simian virus, antigen, hemagglutination inhibition test,  
parainfluenza, Newcastle disease virus

ABSTRACT: The antigenic structure of simian hemadsorbing viruses  
isolated at the Moscow Scientific Research Institute of Virus Prepara-  
tions was studied using the cross HI test with hyperimmune guinea  
pig and rat sera produced for the parainfluenza-parotitis-NDV group.  
Four of the isolated simian viruses were antigenically similar. Pres-  
ence of similar antigens was found in SV-5 and parainfluenza isolates.  
The PG-2 strain was the only one significantly different from the anti-  
genic structure of the SV-5 strain. Orig. art. has: 2 figures and  
2 tables.

[WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 28Jun67/ ORIG REF: 001/ OTH REF: 016

Card 1/1

UDC: 576.858.75.097.5

ACC NR: AT8031917

SOURCE CODE: UR/3399/65/000/061/0228/0233

AUTHOR: Aksel'rod, E. Ye. (Sanitary inspector)

ORG: Omsk Municipal Sanitary-Epidemiological Station/Head--Dr. A. I.  
Zabolokin/(Omskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya)

TITLE: Report of work by the Laboratory of Sanitary Bacteriology of the  
City Sanitary and Epidemiological Station on control of some food  
products

SOURCE: Omsk. Meditsinskiy institut. Nauchnyye trudy, no. 61.  
Gigiyena vodoyemov, vodosnabzheniya, atmosfernogo vozdukha i planirovki  
naselennykh mest (Hygiene of reservoirs, water supply, air, and planning  
of populated places). Omsk, 1965, 228-233

TOPIC TAGS: food sanitation, food preservation

ABSTRACT: Results are reported of bacteriological examination of 226  
samples of sausage products, 138 samples of milk and processed dairy  
products, and 105 samples of milk and dairy product mixtures for  
children, carried out by the Omsk Municipal Sanitary and Epidemiolo-  
gical Station in 1962 and 1963. *Escherichia coli*, *Proteus* and *Salmo-  
nella* were not detected in the 226 sausage samples. The maximum

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ACC NR: AT8031917

permissible count of 1000 bacteria/g of sausage was found in 47% of the samples tested, while the maximum permissible count was found in 89% of samples from the Moscow area and in 95% of samples from the Vitebsk oblast. Sample of 70 milk products examined immediately after pasteurization had an *E. coli* titer of  $> 3$ . Bottled milk generally met the requirements of GOST (All-Union State Standards); however, a decreased *E. coli* titer in all samples after pasteurizations suggests that sanitary-hygienic measures in dairies should be improved. Other dairy products (kefir, clabber, acidophilous milk, and sour cream) showed an *E. coli* titer of  $< 0.3$  in 43% of all samples tested. Pathogenic streptococci were not detected in any of the samples tested. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 003

Card 2/2

ACC NR: AP8034902

SOURCE CODE: UR/0396/68/012/005/0061/0065

AUTHOR: Aleksandrov, P. N.; Chernukh, A. M.

ORG: Laboratory of General Pathophysiology and Experimental Therapy, Institute of Normal and Pathological Physiology/Director--Corresponding member AMN SSSR Prof. A. M. Chernykh/, AMN SSSR, Moscow (Laboratoriya patofiziologii i eksperimental'noy terapii Instituta normal'noy i patologicheskoy fiziologii AMN SSSR)

TITLE: Cytological side effects of some teratogens and antibiotics in tissue culture experiments

SOURCE: Patologicheskaya fiziologiya i eksperimental'naya terapiya, v. 12, no. 5, 1968, 61-65

TOPIC TAGS: cytology, tissue culture method, antibiotic effect

ABSTRACT: Addition of cycloserine (50  $\gamma$ /ml), streptomycin (100  $\gamma$ /ml), or chloridine (40  $\gamma$ /ml) to the nutrient medium of chick fibroblast tissue cultures reduces mitotic activity in the cells. Thalidomide (40  $\gamma$ /ml) caused an increase of abnormal mitoses (cytogenetic effect) in the cells as did streptomycin and chloridine. There was apparently no connection between the two phenomena. Fibroblasts were cultured in

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UDC: 615.065:616-007+615.33].065:615.015.44

ACC NR: AP8034902

glass vessels in medium 199 with added bovine serum (5%). Cells were added to the medium at the same time as were the cells, and evaluations were made on the second or third day after seeding. Orig. art. has: 1 figure and 4 tables. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 09Oct67/ ORIG REF: 016/ OTH REF: 007

Card 2/2

ACC NR: AP8033936

SOURCE CODE: UR/0402/68/000/005/0560/0566

AUTHOR: Amchenkova, A. M.; Sovetova, G. P.

ORG: Institute of Epidemiology and Microbiology im. N. F. Gamaleya  
AMN SSSR, Moscow (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Cytological mechanisms of specific antiviral immunity

SOURCE: Voprosy virusologii, no. 5, 1968, 560-566

TOPIC TAGS: cytology, immunity, molecular mechanism coxsackie virus

ABSTRACT: Cell cultures were used to culture coxsackie virus B5, and specific antisera were obtained from infected leukemic cells to determine specific antiviral resistance. It was demonstrated that specific antiviral resistance accompanies the process of viral carriership. Evidence of viral effects on the cells accompanying antiviral resistance include an increase of elongated fibroblast-like cells, reduction in mitotic activity and reduction in alkaline phosphatase activity in the cytoplasm in cell membranes. Most cell cultures were infected with  $3.10^{-1}$  CPD<sub>50</sub>-cell doses of Coxsackie B5 virus. Most cells remained

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UDC: 616.988-097-092.18

ACC NR: AP8033936

intact until the fifth day after infection. While the cell cultures retained and increased their resistance to Coxsackie virus they still remained sensitive to poliomyelitis and vesicular stomatitis viruses. Passaging influenced the cytopathic effect of the invading viruses. Orig. art. has: 4 figures. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: 01Mar68/ ORIG REF: 010

Card 2/2

ACC NR: AT8032704

SOURCE CODE: UR/3404/65/016/000/0115/0118

AUTHOR: Avdeyeva, L. K.; Bystritskaya, T. I.; Sagaydak, L. P.; Gerasimenko, A. P.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Sporadic salmonellosis in Tomsk

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 115-118

TOPIC TAGS: Salmonella, epidemiology

ABSTRACT: A review of 2086 cases of intestinal illness in Tomsk showed that sporadic salmonellosis is not very significant. Six *Salmonella* serotypes are in circulation in this area: *S. typhimurium*, *S. enteritidis*, *S. paratyphi* A, *S. anatum*, *S. reading*, and *S. london*. *S. typhimurium* is predominant. Convalescents showed a short period of excretion of bacteria (2-4 weeks). Cultures of *S. typhimurium* were isolated from one bird and one animal out of 513 animals and birds studied. *S. typhimurium* cultures were isolated from four out of 128 washings from counters, tables, etc., and 7 out of 116 samples of fruits and vegetables. A total of 116 out of 127 washings from fruits and vegetables were contaminated with some type of intestinal bacteria. In most cases, human salmonellosis in Tomsk was caused by eating contaminated food (meat, eggs, or vegetables). Antiepidemic measures must be directed to improvement of the sanitation of public restaurants and cafeterias. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 1/1

ACC NR: AT8032733

SOURCE CODE: UR/3404/65/016/000/0335/0338

AUTHOR: Belyayev, N. V.

ORG: Department of Cutaneous and Veneral Diseases, Tomsk Medical Institute (Kafedra kozhnykh i venericheskikh bolezny Tomskogo meditsinskogo instituta)

TITLE: Treatment of cutaneous complications of smallpox vaccination

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 335-338

TOPIC TAGS: small pox vaccine, gamma globulin

ABSTRACT: Complex treatment of postvaccinal complications of smallpox vaccination was successful in 34 out of 35 patients (one patient treated late died of gangrene arising from the vaccination). Complications set in from 2 to 3 days up to 30 days after inoculation and in severe cases included hemorrhage, erythema, vaccinal eczema, and related phenomena. Treatment consisted of injections of placental antimeasles gamma-globulin, vitamins B<sub>1</sub> and C, oxytetracycline and local application of a cream or

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ACC NR: AT8032733

Rivanol solution, which cured patients in 7-32 days. After treatment the patient's body temperature dropped, appetite returned, and sores around the vaccinated area began to dry up. [WA-50, CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 00

Card 2/2



ACC NR: AP8031530

SOURCE CODE: UR/9053/62/000/009/0014/0015

AUTHOR: Beresneva, R. (Research associate)

ORG: Kazakh Institute of Plant Protection (Kazakhskiy institut zashchity rasteniy)

TITLE: Identification of cereal and grain mites

SOURCE: Sel'skoye khozyaystvo kazakhstana, no. 9, 1968, 14-15

TOPIC TAGS: insect ecology, plant parasite, agriculture crop

ABSTRACT: Grain and cereal mites were found on 49 of 60 farms in Northern Kazakhstan and Alma-Ata oblasts surveyed from 1965 to 1967. A method of preparing temporary and permanent mite specimens for identification is described. Dorsal and/or ventral views of seven mite species

Card 1/6

ACC NR: AP8031530

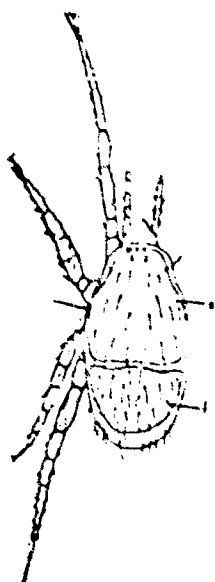


Fig. 1. Parasitic mite

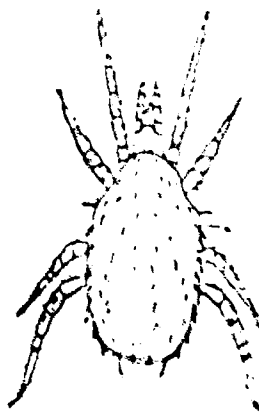


Fig. 2. Powdered mite

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ACC NR: AP8031530

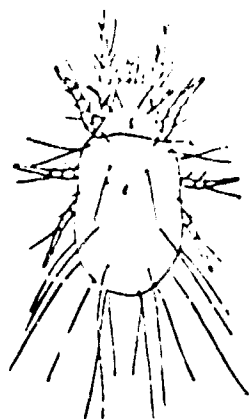


Fig. 3. Elongated mite

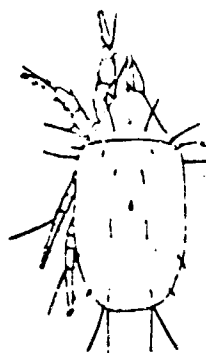


Fig. 4. Flour mite, female  
(dorsal view)

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ACC NR: AP8031530



Fig. 5. Flour mite, male  
(ventral view)

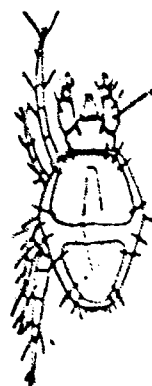


Fig. 6. Oneyletida mite

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ACC NR: AP8031530

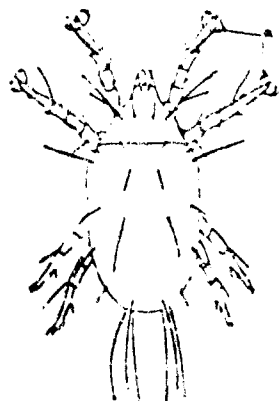


Fig. 7. Rodionov mite



Fig. 8. Right leg of the  
3rd pair of the common  
hairy mite

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ACC NR: AP8031530



Fig. 9. Right leg of the 3rd pair  
of the berkumskiy hairy mite

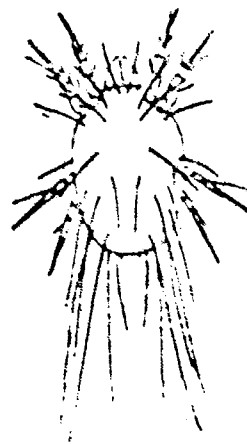


Fig. 10. Common hairy mite

are shown in the accompanying figures. Orig. art. has: 10 figures.  
[WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SURV DATE: none

Card 6/6

ACC NR: AP8034098

SOURCE CODE: UR/0358/68/037.005/0583/0585

AUTHOR: Beshpalova, N. V.

ORG: Uzbekh Scientific Research Institute of Experimental Medical Parasitology and Helminthology im. L. M. Isayev, Samarkand (Uzbek-skiy nauchno-issledovatel'skiy institut eksperimental'noy meditsin-skoj parazitologii i gel'mintologii)

TITLE: The effect of great gerbil extermination on breeding of sandflies in gerbil burrows

SOURCE: Meditsinskaya parazitologiya i parazitarnyye bolezni, v. 37, no. 5, 1968, 583-585

TOPIC TAGS: animal vector research, disease carrying insect, disease carrying mammal, leishmaniasis

ABSTRACT: Study of the sandfly population in great gerbil burrows for two seasons after gerbil extermination with zinc phosphide showed that the sandfly population hardly decreased at all. The species composition of sandflies varied from the first season (burrows occupied by gerbils) to the third season in one gerbil colony as follows: *S. arpaklensis* (52.5%—48.5%), *Ph. papatasi* (42%—50%), *Ph. mongolensis*

Cord 1/2

UDC: 595.771-155.7:599.323.4(575.1)

ACC NR: AP8034098

(2.3%—0.2%), *Ph. caucasicus* (2.2%—0.8%), *Ph. sargeni* (0.1%—0.03%), *Ph. alexandri* (0.4%—0.08%), *S. grekovi* (0.3%—0.08%), and *Ph. andrejevi* and *S. glydei* (individual specimens only). In Uzbekistan, great gerbils are the chief carriers of cutaneous leishmaniasis, and sandflies of the genus *Phlebotomus* transmit the infection. Apparently abandoned gerbil burrows are occupied by hedgehogs, geckos and tortoises, which can serve as sandfly hosts in the absence of gerbils. Orig. art. has: 1 table and 1 figure. [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: 30Nov67

Cord 2.2

ACC NR: AT8031999

SOURCE CODE: EP/0000/67/000/000/0088/0093

AUTHOR: Boyarinova, B. A.; Kovaleva, I. A.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: The sensitizing effects of toxoids and bacterial antigens during various methods of immunization. Report 1

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 88-93

TOPIC TAGS: aerosol immunization, toxoid, diphtheria

ABSTRACT: Sensitization of animals after a single aerosol immunization with purified, concentrated diphtheria toxoid was considerably less pronounced than after subcutaneous or intranasal immunization (the sensitizing properties of diphtheria toxoid during intranasal and subcutaneous immunization were approximately equal). Changes in heparin level and complement level in the serum of inoculated animals did not

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ACC NR: AT8031999

always reflect the degree of anaphylactic reaction. Guinea pigs were immunized with diphtheria toxoid in a dose of 62 AU during subcutaneous immunization, 124 AU (40-min exposure) during aerosol immunization, and 124 AU during intranasal immunization. Five days after aerosol immunization, 2 out of 5 animals challenged with a critical dose of toxoid died (as compared with 100% mortality for animals immunized subcutaneously and 5 deaths out of 8 for animals immunized intranasally). Ten days after aerosol immunization, 1 out of 6 animals developed severe shock (as compared with 4 out of 6 cases of severe shock for the other 2 groups). After 14 and 28 days none of the 12 animals immunized via aerosol died of anaphylactic shock, whereas 11 out of 15 animals immunized subcutaneously died, as well as all 7 intranasally sensitized animals. Concentrated diphtheria toxoid was less useful as a challenge than adsorbed toxoid. Orig. art. has: 1 table.

[WA-50; CHE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none

ACC NR: AP8034247

SOURCE CODE: UR/9056/68/030/010/0057/0062

AUTHOR: Brumshlevn, M. S. (Professor; Chief; Astrakhan); Lashchin-skaya, Ye. V. (Astrakhan)

ORG: Department of Pathological Anatomy /Head--Prof. M. S. Brumshteyn/, Astrakhan Medical Institute (Kafedra patologicheskoy anatomii Astrakhan-skogo meditsinskogo instituta); Institute of Poliomyelitis and Viral Encephalitis /Director--Prof. M. P. Chumakov/ (Institut poliomyelita i virusnykh entsefalitidov)

TITLE: Clinical and anatomical characteristics of Crimean hemorrhagic fever

SOURCE: Arkhiv patologii, v. 30, no. 10, 1968, 57-62

TOPIC TAGS: clinical medicine, Crimean hemorrhagic fever, hemorrhagic nephrosonephritis

ABSTRACT: Rapid development of leucopenia as well as the more common hemorrhagic symptoms is the most common sign of Crimean hemorrhagic fever. Lethal outcome is present in 9—38% of cases, but individual areas usually have lethality rates characteristic of them. For example, in Rostov oblast the common rate is 16—19%. Most victims

Card 1/3

UDC: 616.988-002.151-091

ACC NR: AP8034247

autopsied were between the ages of 28—48 yr (15); between 50—68 yr (6); and between 2½ and 10 yr (2 children). In all these cases the clinical picture was typical. Initial symptoms included: rapid onset of fever, headaches, nausea, muscular pains, vomiting, pain in the epigastral region, bradycardia, and acute lumbar pain. Hemorrhagic symptoms appeared within 2—4 days after onset of fever (blotchiness, rapid blood loss with the most bleeding in the stomach and intestines). In two patients in whom massive blood loss was not apparent, acute circulatory failure was the cause of death. In these patients bleeding was heaviest in the lungs and liver. Other symptoms observed were easy bleeding, paleness of the skin (sometimes jaundice), tachycardia, progressive hypotonia, and loss of memory, and conscious control. The latter indicates acute hemorrhagic fever and an unfavorable prognosis. Blood counts were normal or high in most patients (Hb 20 g% and erythrocytes 5,000,000). Leucocyte count varied between 3000—25,000. Number of thrombocytes and clotting times were abnormal. Albuminuria and hematuria were present in some of the patients. Cardiovascular collapse on a background of acute intoxication and hemorrhaging was the most common cause of death. Examination of corpses revealed mottled skin and hematomas on both the skin and in the tissues—evidence of many small, local hemorrhages. Examination of the brains of 11 corpses revealed hemorrhages there also. Enlarged livers were

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ACC NR: AP8034247

common and histological studies revealed edematous-dystrophic changes in the small blood vessels which would account for the increased vascular permeability accompanying the disease. Orig. art. has: 3 figures. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 06Jun67/ ORIC REF: 008

Card 3/3

ACC NR: AP8033592

SOURCE CODE: UR/0016/68/000/009/0041/0045

AUTHOR: Bystryy, N. F.; Volosivets, A. I.; Luchnikova, I. K.

ORG: All-Union Antiplague Institute "Mikrob", Saratov (Vsesoyuznyy protivochumnyy institut)

TITLE: Identification of classical and El Tor cholera vibrios with specific cholera monophages

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 41-45

TOPIC TAGS: cholera, bacteriophage

ABSTRACT: The cholera polyvalent bacteriophage, used for cholera treatment and prophylaxis, is not convenient for differential diagnosis of classical and El Tor vibrios because of its broad spectrum of action on different groups of vibrios. The chlor a phage type C and the El Tor phage II in indicator dilutions can be used to accurately identify cholera and El Tor vibrios and to differentiate them from cholera-like vibrios. Phage C forms a sterile spot only on a culture of classical cholera vibrios, and the El Tor phage II—only El Tor vibrios. Identification

Card 1/2

UDC: 576.851.315.077.5

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ACC NR: AP8033592

of cholera and El Tor vibrios with indicator phages is simple, convenient, and fast (16--18 hr or 4--6 hr in emergencies). This method is as accurate as the hemagglutination reaction, the polymyxin test, and the soda-serum agglutination reaction. Orig. art. has: 5 tables.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 22Jul67/ ORIG REF: 003/ OTH REF: 003

Card 2/2

ACC NR: AP8034237

SOURCE CODE: UR/0221/68/066/002/0247/0266

AUTHOR: Cherches, B. Z. (Moscow); Khokhlov, A. S. (Moscow)

ORG: Institute of the Chemistry of Naturally Occurring Compounds AN SSSR (Institut khimii prirodnikh soyedineniy AN SSSR)

TITLE: Purification methods and certain physical and chemical properties of interferons

SOURCE: Uspekhi sovremennoy biologii, v. 66, no. 2, 1968, 247-266

TOPIC TAGS: interferon, biophysics, purification method, microbiology

ABSTRACT: This article which is based primarily on Western sources reviews developments in the processes for isolating and identifying interferons, some chemical properties of interferons, results of mol. wt. determinations on interferons, and miscellaneous physical data. Interferons were induced in such tissue cultures as chick embryo fibroblasts, chick embryo chorioallantoic membrane, monkey kidney cells, animals *in vivo*, mucous membrane cultures from various animals, mouse fibroblasts, spleen, and L-cells by different agents including bacterial endotoxin, statolon, bunyamwera virus, influenza virus, chikungunya

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UDC: 576.858

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ACC NR: AP8034237

virus, NDV, *Herpes simplex virus*, *Herpes zoster virus*, *Herpes varicellae virus*.  
Mol. wt determinations were made by gel filtration, diffusion in agar,  
and ultracentrifugation. It was found that interferons have a mol.  
wt. with the organism from which they are isolated. Orig. art. has:  
5 tables. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 081

Card 2/2

ACC NR: AP8034058

SOURCE CODE: UR/2325/8700/39/0075/0079

AUTHOR: Chernyshev, I. D.

ORG: Department of Plant Physiology, Odessa State University im. I. I.  
Mechnikov (Kafedra fiziologii rasteniy Odesskogo gosudarstvennogo  
universiteta); Laboratory of Physiology and Biochemistry, Scientific-  
Research Station for Acroptilon Control (Laboratoriya fiziologii i  
biokhimii Nauchno-issledovatel'skoy stantsii po bor'be s gorchakom)

TITLE: Carbohydrate metabolism in the roots of *Acroptilon* as an index  
of the effectiveness of herbicides

SOURCE: Nauchnyye doklady vysshey shkoly. Biologicheskiye nauki,  
no. 9, 1968, 75-79

TOPIC TAGS: weed killer, carbohydrate metabolism, sodium salt

ABSTRACT: Results are reported on a study of carbohydrate metabolism  
in the roots of *Acroptilon pteris* treated with 2-KF (dimethylamine salt  
of polychlorobenzoic acid) 50 kg/ha and dichloroethane 10 tons/ha [sic].  
The study was carried out during 1964-1966 at the Ukrainian Experi-  
mental Scientific-Research Station for control of *Acroptilon pteris* in  
the fields of the "Krasnyy Chaban" factory of the Kherson oblast.

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UDC: 581.134.1:632.954

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ACC NR: AP8034058

Dichlorethane was placed in the soil to a depth of 20 cm. The herbicide 2-KF was sprayed on the weeds. Inulin, monosaccharides, and disaccharides in the roots were determined by colorimetry. It was determined that 2-KF 50 kg/ha during the 3-yr period depresses the growth processes of *Acroptilon picris*, causes death of the roots to a depth of 40 cm, and depletes sugar reserves in the roots in the lower layers of the soil. Dichlorethane 10 tons/ha causes marked metabolic disorders in the *Acroptilon picris* roots up to a depth of 100 cm. Roots to a depth of 100 cm did not sprout during the 3-yr period. Therefore, dichlorethane is considered a more effective substance than 2-KF for controlling *Acroptilon picris*. Orig. art. has: 4 figures. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 17Jun67/ ORIG REF: 004

Card 2/2

ACC NR: AP8034100

SOURCE CODE: UR/0358/68/037/005/0588/0591

AUTHOR: Dmitriyenko, N. K.; Prikhod'ko, Ye. T.

ORG: Kazakh Republic Sanitation and Epidemiological Station, Alma-Ata (Kazakhskaya respublikanskaya sanepidstantsiya)

TITLE: The epidemiological role of *Dermacentro* and *Ixodes persulcatus* ticks in mountainous tickborne-encephalitis foci depending on their activity in attacking man

SOURCE: Meditsin kaya parazitologiya i parazitarnyye bolezni, v. 37, no. 5, 1968, 588-591

TOPIC TAGS: tick, encephalitis, epidemiologic focus

ABSTRACT: Study of the comparative activity of tick species on man in the Dzhungarski Ala-Tau (altitude of 1500—1700 m) natural focus of tickborne encephalitis showed that *I. persulcatus* crawls more actively on man than *D. pictus* or *D. marginatus*. Although the incidence of virus infection in *Dermacentro* and *I. persulcatus* ticks is almost identical, the latter species is more dangerous because of its greater activity. Female *I. persulcatus* ticks moved at a rate of 7.4 cm/min, and males

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UDC: 616.988.25-022.395.42-036.2

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ACC NR: AP8034100

5.3 cm/min, as compared with 2.8 cm/min for *Dermacentor* females, and 3.5 cm/min for *Dermacentor* males. A total of 350 *Dermacentor* ticks and 535 *I. persulcatus* ticks were observed crawling on man. Orig. art. has: 3 tables. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 23Nov67/ ORIG REF: 004

Card 2/2

ACC NR: AT8032002

SOURCE CODE: UR/0000/67/000/000/0114/0118

AUTHOR: Dubovoy, A. A.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: The relationship between antigens during aerosol immunization

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 114-118

TOPIC TAGS: aerosol immunization, diphtheria, influenza

ABSTRACT: Study of the effectiveness of aerosol immunization with combined diphtheria-influenza vaccines showed that selection of doses in the combined vaccine is of paramount importance. Combined aerosol immunization can produce immunological response to diphtheria antigen only when less influenza antigen is present, apparently because live influenza vaccine is highly immunogenic when administered by the aerosol route, while diphtheria toxoid is less effective via aerosol. The combined vaccine contained diphtheria toxoid in a dose of 540 AU per ml, and

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ACC NR: AT8032002

1—5 (or 20 intranasal) doses of influenza vaccine B per ml. During aerosol immunization each animal aspirated approximately 3.35 doses (0.68 or 0.14 intranasal doses of influenza vaccine and 75 AU of diphtheria toxoid). Guinea pigs were immunized in a 100-liter chamber with an atomizer producing at least 75% of aerosol particles not more than 3.5  $\mu$  in diameter. The immunological response to influenza antigen of any of the combined vaccines did not differ in intensity from response to individual immunization with corresponding doses. Production of diphtheria antitoxin during combined immunization depended on the ratio of vaccines. With 540 AU of diphtheria toxoid and one intranasal dose of influenza vaccine, the level of antitoxin formation differed only slightly from antitoxin formation after a single diphtheria vaccination. However, use of 20 intranasal doses of influenza vaccine almost completely inhibited immunological activity of the diphtheria component. Orig. art. has: 1 table. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8032552

SOURCE CODE: UR/0017/68/000/010/0024/0025

AUTHOR: Faybich, M. (Professor)

ORG: none

TITLE: Biological warfare

SOURCE: Voyennyye znaniya, no. 10, 1968, 24-25

TOPIC TAGS: biologic warfare, biologic warfare agent, biologic aerosol, cholera, plague, smallpox, quarantine

ABSTRACT: In the event of an attack on the Soviet Union, biological agents would be disseminated via bombs or by aerosol sprayers. The latter method would ensure wide distribution of the agent by wind currents over a large area. The article states that American military experts consider it possible to cover a 50—500 km<sup>2</sup> area from one plane. They believe that aerosol particles can persist 4—6 hr in closed spaces and less than 2 hr in the open air. At wind speeds of 5 and more m/sec, the aerosol would be dispersed. Bacterial weapons could be used on industrial centers, large farms, small industries, railroad yards, and transport stations. Another means of spreading the agent would be via polluted water and food and through disease vectors such as ticks

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ACC NR: AP8032552

and mites. The resistance of the agent depends on its nature, time of day, season, and the means by which it is disseminated. Agents which are comparatively resistant to environmental factors would last 5—10 days in summer, 40—50 days in spring and fall, and 2—3 months in winter. Measures which nonimmunized persons can take when threatened by bacterial weapons include: closing windows and doors of houses, stores, and other buildings; purifying or not utilizing questionable food and water; burial or destruction of contaminated wastes and other standard decontamination methods; use of gas masks and protective suits; isolation of sick persons; and constant attention to disinfection and decontamination. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8034104

SOURCE CODE: UR/0358/68/037/005/0615/0616

AUTHOR: Fedorov, V. G.

ORG: Department of General Biology, Omsk Medical Institute (Kafedra obshchey biologii Omskogo meditsinskogo instituta)

TITLE: Ixodoidea ticks on people in Western Siberia

SOURCE: Meditsinskaya parazitologiya i parazitarnyye bolezni, v. 37, no. 5, 1968, 615-616

TOPIC TAGS: tick, animal parasite

ABSTRACT: Tick species observed on people in various geographic zones of Western Siberia in 1954—1967 are shown in Table 1. Tick bites occurred most often on the neck, head, shoulders, hands, and feet. Of the 24

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UDC: 576.895.421(571.1)

- 3 -

ACC NR: AP8034104

Table 1. Ticks observed on people in western Siberia

Zone or subzone	Oblast, city or kray	Number of cases	Number of cases	Tick species										
				<i>A. castaneus</i>	<i>I. ricinus</i>	<i>I. persulcatus</i>	<i>I. legum</i>	<i>I. legum</i>	<i>I. ap. nophus</i>	<i>I. ricinus</i>	<i>H. rufipes</i>	<i>D. pictus</i>	<i>D. nutalli</i>	<i>D. marginatus</i>
Steppe	Omsk oblast	11	14	2	—	—	—	—	—	—	—	3	—	—
	Novosibirsk oblast	5	6	—	—	—	—	—	—	—	—	4	—	—
	Altay kray	1	1	—	—	—	—	—	—	—	—	—	—	—
Southern forest-steppe	Omsk oblast	27	36	—	—	1	1	—	—	—	—	18	—	10
	Omsk	4	4	—	—	—	—	—	—	—	—	2	—	—
	Novosibirsk oblast	2	4	—	—	—	—	—	—	—	—	3	—	—
Northern forest-steppe	Omsk oblast	30	47	—	16	—	—	—	—	—	—	27	—	3
	Tyumen' oblast	3	3	—	—	—	—	—	—	—	—	3	—	—
	Novosibirsk oblast	16	27	—	4	—	—	—	—	—	—	11	—	1
Transitional subzone of secondary swampy birch-aspen forests	Altay kray	6	10	—	—	—	—	—	—	6	—	2	—	—
	Omsk oblast	14	21	—	8	—	—	—	—	—	—	12	—	—

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ACC NR: AP8034104

Table 1. (Cont.)

Taiga	Novosibirsk oblast	39	86	—	86	—	—	—	—	—	—	—	—	—
Salair foothills		23	31	—	31	—	—	—	—	—	—	—	—	—
Altay mountains		9	14	—	5	—	—	—	—	—	9	—	—	—
In all zones and oblasts		190	284	2	131	1	1	2	6	85	9	33	1	13

Note: 1 - including 8 nymphs; 2 - including 1 nymph

taxonomic divisions of Ixodoidea recorded in western Siberia, nearly half can parasitize man. Orig. art. has: 1 table.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 15Apr68

Cord 3/3

ACC NR: AT8032724

SOURCE CODE: UR/3404/65/016/000/0278/0283

AUTHOR: Fedorov, Yu. V.; Kiseleva, Z. F.; Miryutova, T. L.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Changes in the protein composition of horse serum during hyperimmunization with tickborne encephalitis virus

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 278-283

TOPIC TAGS: encephalitis, gamma globulin, serology

ABSTRACT: Hyperimmunization of horses with tickborne encephalitis virus is accompanied by changes in the protein composition of the blood, consisting of a sharp increase in the T fraction, and decrease in the content of albumin and  $\alpha$ -globulin. The content of  $\beta$ - and  $\gamma$ -globulins was almost unchanged. During hyperimmunization (for the first eight cycles), the total protein content increased, and subsequently decreased to initial levels. After the taking of blood for serum production, normalization of the total protein content occurred more quickly in horses with

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ACC NR: AT8032724

fewer immunization cycles and more slowly in animals exploited for a long period. Normalization of individual protein fractions in horse serum after blood taking paralleled normalization of the total protein content. Normal levels were reached on the 17th day after massive blood-taking, which indicates the possibility of reducing the interval between immunization cycles. Orig. art. has: 1 figure and 1 table.

[MA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 009

Card 2/2

ACC NR: AT8032726

SOURCE CODE: UR/3404/65/016/000/0289/0295

AUTHOR: Fedorov, Yu. V.; Zel'tina, N. F.; Sirel'nikov, G. Ye.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Production of hyperimmune horse serum against tickborne encephalitis

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 289-295

TOPIC TAGS: encephalitis, blood serum

ABSTRACT: The best producers of serum against tickborne encephalitis are 510—490 kg horses from tickborne encephalitis foci in West Kazakhstan and Tomsk oblast. The highest titer of virus-neutralizing antibodies was observed in horse blood in June-September, with low titers in October-December and April-June. The lowest antibody titer was recorded in January-March. Intramuscular immunization for the first six cycles had no special advantages as compared with subcutaneous inoculation. Use of intramuscular injection in later cycles, however,

Cord 1/2

ACC NR: AT8032726

decreased the specific activity of the serum. Immunization of horses with tickborne encephalitis virus was accompanied by amyloid degeneration of parenchymatous organs and a decreased hemoglobin level. Horses infected with strangles showed a decrease in specific serum activity, but penicillin used for prophylaxis did not affect the production of specific antibodies. Orig. art. has: 3 tables.

[WA-50; CBE No. 38; JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG RLF: 008

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Cord 2/2



ACC NR: AP8035422

SOURCE CODE: UR/0433/68/000/011/049/0049

AUTHOR: Fedorova, L. I. (Senior laboratory assistant)

ORG: Moscow Division, VIR, Mikhnevo, Moscow oblast (Moskovskoye  
otdeleniye VIR)

TITLE: Barley varieties resistant to barley smut

SOURCE: Zashchita rasteniy, no. 10, 1968, 49

TOPIC TAGS: plant fungus, barley

ABSTRACT: Infection of 300 varieties of barley with barley smut by the vacuum method was conducted in 1965—1967 to determine which samples of the world-wide collection were resistant to this disease. The vacuum apparatus was designed by M. Z. Anpilov. A higher percentage of highly resistant and comparatively resistant specimens were found among Caucasian strains and strains from Canada, where a careful selection program has been instituted. Most Soviet varieties were very susceptible (35.7 to 63%) to the local population of *U. nuda* (the agent of barley smut). Caucasian varieties damaged only 10% included k-6136, k-6140, k-6570, k-6665, k-6672, k-8166, k-15468, k-6147, k-6152, k-6161, k-16610, k-17486, k-17491, and k-17492. Highly resistant varieties

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UDC: 632.4:582.285.1:633.16

ACC NR: AP8035422

(damaged only 0.1—2%) included k-1866 (Armenia), k-15468 (Azerbaijan),  
and k-6147 (Georgia). [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none

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Card 2/2

ACC NR: AP8033607

SOURCE CODE: UR/0016/68/000/009/0150/0151

AUTHOR: Fedorova, O. A.; Topolyanskaya, S. I.; Pukhnarevich, A. F.;  
Makarova, V. G.; Maslovskaya, O. I.; Lukankina, N. P.; Petukhova, A. P.

ORG: Sanitation and Epidemiological Station, Kalinin Rayon, Moscow  
(Sanitarno-epidemiologicheskaya stantsiya)

TITLE: Illnesses caused by enteropathogenic *E. coli* 0124

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9,  
1968, 150-151

TOPIC TAGS: escherichia coli, intestinal disease

ABSTRACT: An epidemic of acute intestinal illness in a youth camp in the summer of 1966 was traced to enteropathogenic *E. coli* 0124. A total of 37 children (22 aged 7-10 yr, and 15 aged 10-15 yr) became ill within 12 hr, exhibiting symptoms of fever, liquid stool, headache, and sometimes nausea and vomiting. The fever lasted a day for 13 children, and 2-3 days for the remaining children, with diarrhea persisting in most cases for 2-4 days. *E. coli* 0124 was isolated from the feces of 19 children. The nature of the outbreak suggested a single source of

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UDC: 616.981.48

ACC NR: AP8033607

infection and an alimentary route of transmission but bacteria could not be isolated from food or water. An additional 30 children and 6 adult personnel excreted the enteropathogenic *E. coli* 0124 without becoming ill. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 04Apr67

ACC NR: AP8031729

SOURCE CODE: UR/0346/68/000/009/0095/0097

AUTHOR: Frolov, B. A. (Candidate of veterinary sciences); Kozlov, V. I. (Research associate)

ORG: [Frolov] All-Union Scientific Research Institute of Veterinary Sanitation (Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii); [Kozlov] Krasnoyarsk Scientific Research Veterinary Station (Krasnoyarskaya nauchno-issledovatel'skaya veterinarnaya stantsiya)

TITLE: The distribution of fowl ectoparasites in Krasnoyarsk kray

SOURCE: Veterinariya, no. 9, 1968, 95-97

TOPIC TAGS: anima' parasite, parasite ecology

ABSTRACT: Parasitological study of fowl ectoparasites in Kansk and the Chulym-Yenisey basin (Krasnoyarsk kray) showed that in the northeast sections the bird lice *M. gallinae*, and *M. stramineus* are most common. These *Mallophaga* species were observed on fowl in 8 out of 10 farms, with a density of 300—350 specimens per chicken. *G. chologaster* was also found on one farm. In the Chulym-Yenisey basin, however, bird lice, fowl mites and bed bugs were found simultaneously on chickens in some farms. The mite *D. gallinae*, a temporary parasite of chickens,

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UDC: 619:[616.995.42+616.995.7]-036.2(571.51)

ACC NR: AP8031729

does not survive well in the severe climatic conditions around Kansk. The most dangerous period of the year for carrying of ectoparasites into poultry farms is late April-May and August-September, due to large-scale regrouping of fowl at this time. Bird lice can also develop in the winter, while mites and bedbugs multiply very slowly at temperatures of -3° to 10°C. A 3—5% hot solution of caustic soda or a 0.5% aqueous solution of Dipterex are used for combatting bird mites and bed bugs. Other general methods recommended for decreasing the spread of ectoparasites include killing of small rodents, examination of birds for ectoparasites before regrouping, and disinfection of poultry farms.

[WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none

ACC NR: AP8035380

SOURCE CODE: UR/0439/68/047/009/1425/1427

AUTHOR: Garbuzov, V. K.; Senina, Ye. F.; Shuvayeva, M. I.

ORG: Aral Sea Antiplague Station (Aralomorskaya protivochumnaya stantsiya)

TITLE: The causes of acute depression of the great gerbil population in the Bol'shiye Barsuki sands in 1964

SOURCE: Zoologicheskiy zhurnal, v. 47, no. 9, 1968, 1425-1427

TOPIC TAGS: plague, disease carrying mammal, animal vector research

ABSTRACT: For the first time in 20 yr the population of great gerbils (*Rhombomys opimus*) in the plague focus in the Bol'shiye Barsuki sands near the Aral Sea was decimated by flood. In the spring of 1964, floods from thawing of an unusually heavy snowfall combined with torrential spring rains to flood great gerbil burrows in this area. Only 132 out of 2947 gerbil colonies studied were inhabited. The sharpest drop in gerbil population occurred from the Muyum-Kum sands to the Aral Sea shores: of 100 colonies inhabited in the fall, only 2 remained inhabited in the spring of 1964. Damage to gerbil colonies in the

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UDC: 599.322.2:591.9

ACC NR: AP8035380

northern parts of the Bol'shiye Barsuki sands was not so severe. Death of great gerbils in an area of 160,000 hectares corresponds to the results of a large scale extermination program. Rodent-ecto-parasite contacts were broken during this period, so that from 1964 to 1967 no gerbils with plague have been found in Bol'shiye Barsuki.  
[W.-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002

Card 2/2

ACC NR: AT8032543

SOURCE CODE: UR/3407/68/029/000/0157/0207

AUTHOR: Gavrilov, E. I.; Naglov, V. A.; Fedosenko, A. K.; Shervchenko, V. L.; Tatarinova, O. M.

ORG: Institute of Zoology, Academy of Sciences KazSSR (Institut zoologii Akademii nauk KazSSR)

TITLE: Ornithofauna of the Volga-Ural inter-river zone

SOURCE: AN Kazakh SSR. Institut zoologii. Trudy, v. 29, 1968. Novosti ornitologii Kazakhstana (Ornithological news of Kazakhstan), 153-207

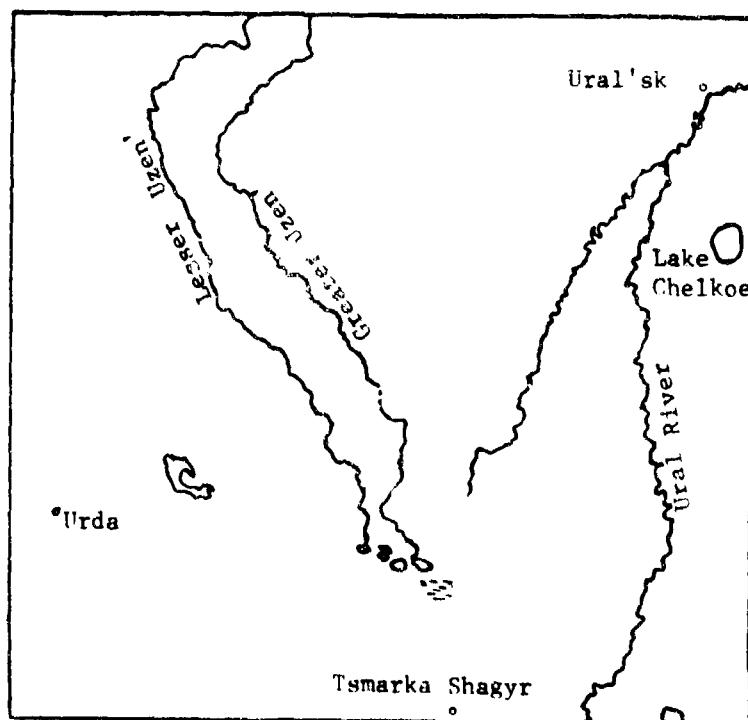
TOPIC TAGS: zoology, ornithology, animal ecology

ABSTRACT: The birds of the Volga-Ural inter-river zone are described. The area studied includes the town of Urda in the west, the town of Ural'sk in the north, the Ural river to the east, and the town of Tsmarka-Shagyr in the south. Figure 1 shows the boundaries of the area studied. In all, 104 species in western Kazakhstan are described, the most important of which are the following: *Emmerica leucocephala*, *Calcarius lapponicus*, *Anthus cervinus*, *A. pratensis*, *Prunella modularis*, *Monticola saxatilis*, and *Muscicapa albicollis*; actual ranges given in

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UDC: 598.2/90-19

ACC NR: AT8032543



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Fig. 1. Map-diagram of the Volga-Ural inter-river zone

ACC NR: AT8032543

the literature were confirmed by actual capture of birds. Other identifications were made by examining the nests of: *Chloris chloris*, *Uragus sibiriacus*, *Hippolais Icterina*, and *Turdus atrogularis*. Nesting communities of *Lanius excubitor*, *Sylvia nana*, and *Acanthis flavirostris* were observed. All species observed were described with data on the presence of nesting colonies, whether or not they are colony birds, measurements of individuals if taken, the number of eggs discovered, flight patterns, and other data. Orig. art. has: 3 figures.

[WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SURM DATE: none

Card 3/3

ACC NR: AT8031982

SOURCE CODE: UR/0000/67/000/000/0019/0022

AUTHOR: Gel'fand, A. S.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Q-fever focus in the forest-steppe zone of Irkutsk oblast

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk. Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 19-22

TOPIC TAGS: Q fever, epidemiologic focus

ABSTRACT: The existence of a Q-fever focus in the Irkutsk-Balagansk and Chuna-Biryusa rayons of Irkutsk oblast was established in 1963, although it cannot yet be considered a natural focus because of negative serological tests with susliks and other small rodents. In August 1963, 1963, eight convalescents at the Pervomayskiy collective farm in Zalari rayon showed a 4-8-fold increase in antibody titer in the complement-fixation reaction with Q-fever antigen. The percentage of positively reacting sheep in eight flocks varied from 0-26% during the 2-yr study.

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ACC NR: A18031982

Antibodies in high titers were found in only two bioassays with material from house mice. *Dermacentor* ticks and a variety of small rodents were also included in the study. The clinical history of one Q-fever patient was characterized by a sudden onset, fever with severe headache, weakness, and pain in the back muscles. The incubation period was seven days and the route of infection was via aerosol. The patient remained weak for a considerable period of time. In two cases of human Q-fever, infection was definitely transmitted from sheep. No single predominant path of infection could be established, however.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

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ACC NR: AP8033954

SOURCE CODE: UR/0016/68/000/010/0032/0036

AUTHOR: Ginsburg, N. N.; Cherkasskiy, B. L.

ORG: Central Institute of Epidemiology, Moscow (Tsentral'nyy institut epidemiologii)

TITLE: Current problems of scientific research in the epidemiology of anthrax

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 10, 0968, 32-36

TOPIC TAGS: anthrax, soil bacteriology, communicable disease

ABSTRACT: Soil infestation with *Bacillus anthracis* is a basic factor in the transmission of anthrax to man and animals. Foci of infection may originate in areas where the bodies of animals dying of the infection are buried without proper disinfection. *Anthraxis* spores in the soil are a potential hazard for approximately 10 yr. Although mass vaccination in cattle has reduced the danger of infection, soil infestation continues to be a source of infection for man. Thus, anthrax morbidity in the Volgograd oblast was caused by soil infestation in 8.7% of cases from 1947 to 1963, in the Azerbaydzhan SSR in 9.4% of cases in 1961, and in the

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UDC: 616.981.51-036.2.001.5

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ACC NR: AP8033954

Georgian SSR in 9% of cases. A study of the territorial distribution of anthrax has led some authors to believe that is more prevalent in chernozem areas than in podzol areas. Plant life indigenous to a particular area may affect the viability of *Bac. anthracis* in the soil. Clover, vetch (*Vicia*), winter wheat, rye, rhubarb and garlic (*Allium sativum*) plants are antagonistic, while wheat grass, potato, horse radish (*Cochlearia armoracea*) and turnip plants provide a favorable environment for *Bac. anthracis* growth. Anthrax is found more frequently in areas with high humidity, in swamplands, and near river banks. *Bac. anthracis* has been isolated in wild animals, including deer, elk, and Pamir argali. Numerous reports have confirmed that rodents are carriers. The pathogen has been isolated from small susliks, great gerbils, longtailed marmots, the red-tailed Libyan jird, and the common field mouse. Transmission of anthrax by *Arthropoda* from an infected or dead animal to humans has been reported. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 25Oct57/ ORIG REF: 023/ OTH REF: 001

Card 2/2

ACC NR: AP8036682

SOURCE CODE: UR/0216/68/00G/006/0820/0830

AUTHOR: Guberniyev, M. A.; Drozhennikov, V. A.; Kolobov, A. V.

ORG: Institute of Experimental Biology, AMN SSSR (Institut eksperimental'noy biologii AMN SSSR)

TITLE: Research on desoxyribonuclease activity in *Escherichia coli* K-12 ( $\lambda$ ) using a microexpress method

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 6, 1968, 820-830

TOPIC TAGS: *escherichia coli*, enzyme, colorimetric analysis  
bactericide

ABSTRACT: Desoxyribonuclease activity in a lysogenic strain of *Escherichia coli* K-12 ( $\lambda$ ) was studied by a micro-express method before and after the action of mitomycin C. The method is based on the colorimetric determination of stained compounds of desoxyribose (acid-soluble products of DNA hydrolysis) with diphenylamine. The intensity of the stain, which is directly proportional to the amount of acid-soluble products, is an indication of the enzyme activity hydrolyzing high polymer DNA. Enzyme activity is expressed in micromolecules of desoxyribose capable of entering into the reaction of diphenylamine as a result of

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UDC: 577.1



ACC NR: AP8036682

enzymatic hydrolysis of DNA incubated for 1 hr at 37°. In the experiment, enzyme activity was expressed in micromolecules of desoxyribose in the conversion to 1 mg of cellular extract protein. It was determined that optimum conditions (pH and Mg ion concentrations) for desoxyribonuclease activity (endonuclease I, exonuclease II and III) in *E. coli* K-12 ( $\lambda$ ) was close to the optimum pH and Mg ion concentration in nonlysogenic strains of *E. coli* B. When *E. coli* K-12 was incubated with mitomycin C 0.5  $\gamma$ /ml for different periods of time, no significant effect on endonuclease I activity, or DNA or protein synthesis was noted. There was an increase in the activity of induced  $\lambda$ -exonuclease, which reached a maximum at the moment of departure of phage particles from the cells. When a bactericidal concentration of mitomycin C 4  $\gamma$ /ml was added to the nutrient medium, there was a 10-14% increase in endonuclease I activity, which was probably connected with destruction of the ribosomes. Orig. art. has: 2 tables and 6 figures. [WA-50; CBE: No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 01Jan68/ ORIG REF: 004/ OTH REF: 035

Card 2/2

ACC NR: AT8032432

SOURCE CODE: UR/3411'66/000/049/0129/0139

AUTHOR: Gudkov, A. V. (Candidate of biological sciences)

ORG: Department of Microbiology, Vologda Milk Institute (Kafedra mikrobiologii Vologodskogo molochnogo instituta)

TITLE: Vitamin requirements of certain *Clostridium* species

SOURCE: Molochnoye. Vologodskiy molochnyy institut. Trudy, no. 49, 1966. Trudy. Tekhnologicheskii fakul'tet (Proceedings of the technological faculty), 129-139

TOPIC TAGS: vitamin, nutrition, clostridium, bacteria metabolism

ABSTRACT: The nutrient and vitamin requirements of several species of *Clostridium*, isolated from milk and fats, were determined. The *Clostridia* were grown on Ford's synthetic media whose composition is shown in Table 1. The six strains used for culturing were: *Cl. tyrobutyricum* B219, and five strains isolated from fats; *Cl. butyricum*, 2 strains; *Cl. heidelbergii*; *Cl. acetobutyricum* 619; *Cl. sporogenes* 532, from the English national industrial culture collection. All these organisms grow very well in the above media except for *Cl. sporogenes* and *perfringens*. However, if biotin is absent from the media none of these organisms will grow. Results of this vitamin requirement study are shown in Table 2. *Cl. tyrobutyricum* is used as a

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ACC NR: AT8032432

Table 1. Composition of Ford's medium.

Basic medium		Amino acid mixture	
Component	Quantity	Component	Quantity
Glucose, g	12	l-glutamine, g	1
K <sub>2</sub> HPO <sub>4</sub> , g	12	l-leucine, g	0.5
Limonic acid, g	0.5	l-isoleucine, g	0.5
Sodium acetate (tri-hydrate), g	2.5	l-valine, g	0.5
Mineral salt solution, ml	10	l-lysine, g	0.5
Adenine, mg	5	l-alanine, g	0.5
Guanine, mg	5	l-asparagine, g	0.5
Uracil, mg	5	l-arginine, g	0.2
Xanthine, ml	5	l-methionine, g	0.2
Thiamine, ml	2	l-glycine, g	0.2
Pyridoxine, ml	2	l-cystine, g	0.2
Riboflavin, ml	2	l-serine, g	0.2
Nicotinic acid, ml	2	l-proline, g	0.2
Calcium pantothenate, m.	2	l-tyrosine, g	0.2
Folic acid, ml	0.2	l-histidine, g	0.2
Biotin, ml	10	l-phenylalanine, g	0.2
Ascorbic acid, g	5	l-threonine, g	0.2

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ACC NR: AT8032432

Table 1. (Cont.)

B <sub>12</sub> , mg	2	l-tryptophan, g	0.2
pH about 7		pH, with added KOH, approaches 7	
Distilled water to 200 ml		Distilled water to 250 ml	

Table 2. Vitamin requirements of *Clostridia*

Strain	Incubation time in hr	Optical density, measured at 580 $\mu$ x 10									
		All vitamins	Without riboflavin	Without thiamine	Without nicotinic acid	Without pyridoxine	Without Ca-pantothenate	Without folic acid	Without vitamin B <sub>12</sub>	Without biotin	Without all vitamins
Cl tyrobutyricum BZ <sub>1</sub>	22	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	72	9.5	9	1.85	3.1	0.5	0.2	0.2	1.7	3.5	0.2
	70	10	8.3	4.5	6.2	4.9	1	2.2	4.1	4.2	0.2
2nd Passage	108	10	8	7.2	8	8	7.2	6.2	3.4	4.0	1
3rd Passage	108	11	11	8.5	10.5	8.5	6.4	7.8	9.2	3.4	1
Cl tyrobutyricum 5 Cl	22	0.45	0.55	0.45	0.45	0.45	0.5	0.4	0.3	0.4	0.2
	48	9	9	2.1	3.6	4.3	2.9	1.7	2.1	3.4	0.2
	70	9.4	9	5	7.2	8.2	4.9	3.7	7.2	1.1	1

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ACC NR: AT8032432

Table 2. (Cont.)

Cl. tyrobutyri-	22	1.9	2.5	0.2	0.3	0.6	0.35	0.25	0.25	0.35	0.2
cum 10 Cl.	48	8.5	9	0.75	2.9	8.7	2.1	1.55	3.3	3.75	0.2
	70	9.8	10	5.6	6.3	10	5.6	4.1	7.4	3.2	0.2
Cl. tyrobutyri-	22	6.7	4.5	1.7	1.2	1.9	1	1.85	1.5	1.8	1
cum 6 Cl.	48	9.6	9.6	2	1.5	2.2	1.4	1.5	2	2.55	1
	70	10	10	1.4	1.1	2.6	1.2	1.1	1.7	2.5	0.1
Cl. tyrobutyri-	22	2.3	4.1	1.1	0.85	0.75	1.4	0.9	1.1	0.9	0.4
cum 4 Cl.	48	9.5	9.8	5	5.8	7.5	6.45	4.4	6.4	1.5	1
Cl. tyrobutyri-	22	1.7	2.7	1.6	2.5	2.6	1.9	1.6	2.6	1.7	0.4
cum 2 Cl.	48	10	10	5.3	4.9	5.3	1	4	5.8	3.5	0.65
Cl. butyricum	21	5	5	6.3	6.8	6.6	6	5.2	6.4	0.5	0.6
655B	45	4.9	5.3	6	5.8	6	5.1	4.7	5.7	0.6	0.9
Cl. beijerinckii	26	7.4	7.2	7.4	7.4	7.4	7.6	6.8	7.4	0.8	0.9
M <sub>2</sub>	45	8.3	8.2	8.3	8.1	8.3	8.5	7.8	8.3	0.9	1
Cl. acetobutylicum	25	1.9	1.2	1.75	1.6	1.35	1.5	1.6	1.6	1.6	1.2
619	48	7.4	8.9	7.4	8	7.6	7.6	7.6	7.6	1.6	1
Cl. sporogenes	26	2.4	2.25	2.9	3.4	3.2	3.2	4.2	3.6	0.7	0.42
532	45	6.9	6.8	7	8	7.2	7	7.2	7.2	0.8	0.6
Cl. beijerinckii 7 Cl	21	6.2	6.3	6.3	6.3	6	6.2	6	6	4	3.9

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ACC NR: AT8032432

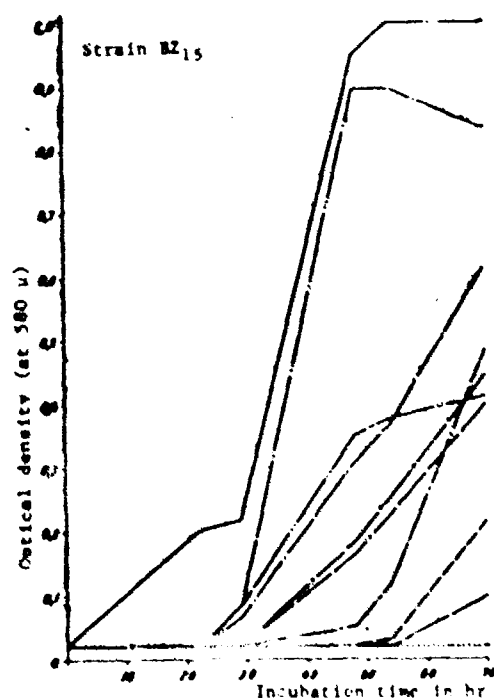


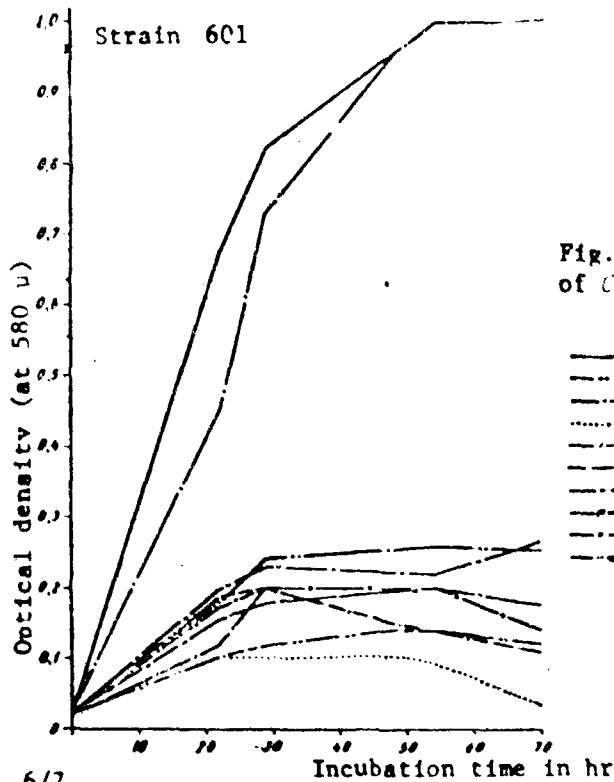
Fig. 1. Vitamin requirements of *Cl. tyrobutyricum*

Conditions:

- With all vitamins
- - - Without Ca-pantothenate
- ... Without riboflavin
- ..... Without all vitamins
- Without nicotinic acid
- - - Without folic acid
- ... Without B<sub>6</sub>
- ..... Without B<sub>12</sub>
- Without thiamine
- - - Without biotin

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ACC NR: AT8032432



Card

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ACC NR: AT8032432

model organism to illustrate difference in growth obtained on the same basic media varying in vitamin content as shown in Figures 1 and 1a. *Cl. tyrobutyricum* is close to *Cl. pasteurianum* in vitamin requirements. It is considered a variant of *Cl. pasteurianum*. Orig. art. has: 2 figures and 2 tables. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 007

Card 7/7

ACC NR: AT8033766

SOURCE CODE: UR/3287/67/021/000/0024/0029

AUTHOR: Ivanov, I. A.

ORG: Leningrad Chemical Pharmaceutical Institute (Leningradskiy khimiko-farmatsevticheskiy institut)

TITLE: Growth and distribution characteristics of medicinal plants in Tsentralno-Yakutskiy and in the Namskiy Rayons

SOURCE: Leningrad. Khimiko-farmatsevticheskiy institut. Trudy, v. 21, 1967. Voprosy farmakognozii (Pharmacognostic problems), no. 4, 24-29

TOPIC TAGS: Biogeography, geography, pharmacognosy

ABSTRACT: Vegetation is minimal in the Tsentral'no-Yakutskiy and Namskiy rayons. It must resist winter frost, summer droughts, and extremely saline soil. During expeditions of 1960, 1962, and 1965 collections were made along the central Lena valley near populated areas outside the towns of Yakutsk, Tabagi, Khatassy, Mangan, Zhataya, and Kangalassy (Tsentral'no-Yakutskiy rayon) and Namsy and Appany (in the Namskiy rayon). *Larix dahurica* was a common plant in this region. *Rosa acicularis* (40%) and *Alnus fruticosa* (3%) were the most common plant cover. In other areas *Vaccinium vitis-idaea*, *Chamaenerium angustifolium*,

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ACC NR: AT8033766

*Pyrola incarnata* and *Vicia cracca* were often found. Occasionally *Peltigera aptosa* was discovered. Plants commonly encountered in swamps included *Empetrum sibiricum* and *Ledum palustre*. Tree cover included: *Pinus silvestris*, *Lonicera altaica*, and *Juniperus communis*. Known medicinal plants composed 80% of samples including *Arotostaphylos uva-ursi*, *Thymus serpyllum* (no per cent given), *Pulsatilla flavescens* (15%), *Vicia cracca* (10%), *Galium boreale* (8%), *Aster alpinus*, *Geranium glomerata* (5%), *Thalictrum minus* (5%), *Papaver nudicaule* (3%), and *Equisetum arvense* (3%). In another area, *Cetaria islandica* was the most common plant (20%). Similar results hold for other observation stations and these are discussed in detail. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8031993

SOURCE CODE: UR/0000/67/000/000/0060/0063

AUTHOR: Ivanova, D. P.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Cultivation of *D. sibiricus* in tissue culture

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 60-63

TOPIC TAGS: tissue culture, rickettsia

ABSTRACT: Infection of tissue culture with *D. sibiricus* did not cause profound morphological changes in cells in the early stages of rickettsial development; cells retained viability and ability to multiply. Furthermore, rickettsia were retained and accumulated during passaging of infected cells without loss of pathogenicity. Only abundant accumulation of rickettsia in cells caused their death. Nutrient media without serum were successfully used for cultivation of rickettsia in L or Hep-2 cells or embryonic human fibroblasts. The optimum incubation temperature for

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ACC NR: AT8031993

accumulation of rickettsia in cells is 35--30°C. Medium 199 (straight or diluted with Hank's solution) supported intense multiplication of rickettsia. Use of media without serum makes possible long maintenance of cells without natural disintegration. Local strains of *D. sibiricus* 126-C 1-K, 2-K, 3-K, and the standard strain Netsvetayev were used. With accumulation of rickettsia in cells, the cytoplasm became more vacuolized and eosinophilic. Cell volume increased and more round cells were noted. Orig. art. has: 1 table. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

ACC NR: AP8032939

SOURCE CODE: UR/0217/68/013/005/0838/0840

AUTHOR: Kalamkarova, M. B.; Nankina, V. P.; Kofman, Ye. B.

ORG: Institute of Biological Physics, AN SSSR Pushchino, Moscow oblast  
(Institut biologicheskoy fiziki AN SSSR)

TITLE: Possibility of the participation of light meromyosin components in the contraction-relaxation cycle. I. The effects of cholinesterase inhibitors and light meromyosin fractions on glycerinated muscle fibers

SOURCE: Biofizika, v. 13, no. 5, 1968, 838-840

TOPIC TAGS: meromyosin, muscle physiology, cholinesterase inhibitor, muscle contraction

ABSTRACT: The possibility of restoring contractile activity in glycerinated muscle fibers blocked by cholinesterase inhibitors was determined. As shown in Figures 1 and 2, Eserine blocks contraction and the effects of this compound are counteracted by the light meromyosin

Card 1/3

ACC NR: AP8032939

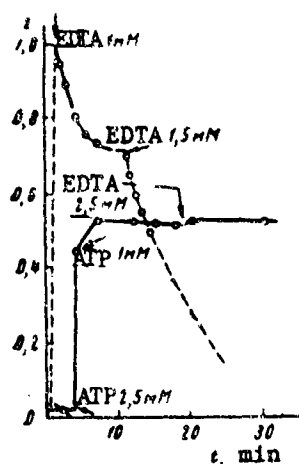


Fig. 1. Effect of Eserine ( $1 \times 10^{-4}$  M) on contraction and relaxation in glycerinated muscle fibers.

Conductor width— 300  $\mu$ . Arrows indicate the moment of addition of solutions. Concentration: ATP—2.5 mM;  $MgCl_2$ —0.001 M; KCl—0.1 M; EDTA—2.5 mM; abscissa—time in min; ordinate—wt. in g; Dotted lines indicate contraction of intact glycerinated muscle fiber

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ACC NR: AP8032939

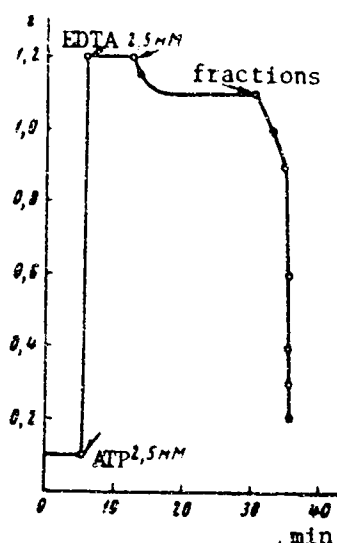


Fig. 2. Effect of protein I fraction of light meromyosin fraction on relaxation of a glycerinated muscle fiber, inhibited with Eserine ( $1 \times 10^{-4}$  M).

Conductor width—300  $\mu$ . Arrows indicate the moment of addition of solutions. Concentration: ATP—2.5 mM;  $MgCl_2$ —0.001 M; KCl—0.1 M; EDTA—2.5 mM; abscissa—time in min; ordinate—wt. in g; dotted lines indicate contraction of intact glycerinated muscle fiber

fraction obtained by chromatography on a DEAE-cellulose column. Orig. art. has: 2 figures. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 003

Card 3/3

ACC NR: AT8032693

SOURCE CODE: UR/3404/65/016/000/0007/0011

AUTHOR: Karpov, S. P. (Professor)

ORG: Tomsk Medical Institute (Tomskiy meditsinskiy institut); Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Formation of focal habitats of tickborne encephalitis

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 7-11

TOPIC TAGS: human ailment, tickborne encephalitis, epizootiology

ABSTRACT: Human-settled areas in the taiga lead to the formation of inhabited tickborne encephalitis foci which have great epidemiological significance. An inhabited tickborne encephalitis focus contains an abundant food supply for the imago tick. This food source is usually livestock. Incidence of this disease increases with the population of forest tick species, or when the number small mammals—the food source for preimagal ticks—increases. The increase in tick population in inhabited areas is aided by unorganized cattle care. Any

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ACC NR: AT8032693

events which intensify the circulation of virus among ticks in inhabited areas increases the number of virus-carrying ticks. Orig. art. has: 1 table. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 007

Card 2/2

ACC NR: AT8032721

SOURCE CODE: UR/3404/65/016/000/0267/0269

AUTHOR: Karpov, S. P. (Professor); Fedorov, Yu. V.; Selezneva, A. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok); Tomsk Medical Institute (Tomskiy meditsinskiy institut)

TITLE: Characteristics of specific gamma-globulin against tickborne encephalitis in different immunological reactions

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 267-269

TOPIC TAGS: gamma globulin, encephalitis, serologic test

ABSTRACT: Preparation of anti-encephalitic gamma-globulin increased the immunological indices detected in the neutralization reaction (NR), the passive hemagglutination reaction (PHR), and the complement-fixation reaction (CFR). In specific gamma-globulin the concentration of virus-neutralizing antibodies increased approximately 0.6 lg LD<sub>50</sub>, the concentration of hemagglutination inhibiting antibodies increased by a factor of 3.7, and complement-fixing antibodies by a factor of 5.7. Since anti-encephalitic gamma-globulin increases immunological indexes in serological

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ACC NR: AT8032721

tests as compared with the initial hyperimmune serum, simple reactions such as the PHR and CFR are recommended to determine antibody concentration. Antibody titers in the PHR increased from 1.2 to 28 times, and in the CFR from 2 to 32 times. Orig. art. has: 1 table.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 003

Card 2/2

ACC NR: AP8034067

SOURCE CODE: UR/0177/68/000/010, 026/0031

AUTHOR: Kazantsev, A. P. (Colonel, Medical service; Professor)

ORG: none

TITLE: Human mycoplasmosis. Survey

SOURCE: Voyenno-meditsinskiy zhurnal, no. 10, 1968, 26-31

TOPIC TAGS: human ailment, mycoplasmosis, pathology

ABSTRACT: The article surveys cases and characteristics of human mycoplasmosis from the literature. Mycoplasmosis attacks the respiratory organs and causes grave complications (primary atypical pneumonia, acute bronchitis, and upper respiratory tract failure). It also involves the urogenital system (a bacterial urethritis, gynecological problems), but rarely involves other organs. Mycoplasmas are pleuropneumonia-like organisms (or PPLO's) and are widely distributed in nature. Twenty known species have been isolated from soils, sewage, animals, and healthy and sick persons. Five types have been isolated from humans: *M. pneumoniae*, *M. hominis* type 1 et type 2, *M. salivarium*, *M. fermentans*, and *M. orale*, the first two of which are pathogenic for

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UDC: 616-002.828

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ACC NR: AP8034067

humans, and the others are non-pathogenic saprophytes. They are characterized by their varying diameters (150—225  $\mu$ ), the ability to multiply on a cellular medium; polymorphism; dependence on cholesterol or other sterols for growth; their resistance to sulfanilamides, penicillins, and streptomycins, and their sensitivity to tetracyclines; the fact that they are killed by distilled water; and the fact that they differ from bacterial L-forms. The mechanism of microplasma pathogenesis is little known. It is thought to attack the mucous membranes lining the respiratory and urogenital tracts. This is complicated by the fact that infection with mycoplasmas does not always cause fevers. Mycoplasmas have been isolated from healthy persons who have antibodies to them in high titers. The symptoms they produce are periodic exanthema, mental changes, and encephalitis. Often a generalized infection of the brain, lymph nodes, and lung tissue has been observed. Animal mycoplasmas (*M. neurolyticum* and *M. gallisepticum*) produce a neurotoxin similar to the known exotoxins. The neurotoxin has a primary toxic effect on the nervous system, irritates the capillaries, and increases the permeability of the blood brain barrier; it is neutralized by a specific antiserum. Usually the source of infection is a mycoplasma carrier; infection usually occurs via the respiratory tract. Susceptibility varies with age—young children. Young adults are the most susceptible. Mycoplasmosis is a particular problem

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ACC NR: AP8034067

on military installations regardless of the season, and seems to be connected with the presence of newly inducted recruits. It is extremely contagious and it is thought that very small doses are infective. A person can remain a carrier for a long time; mycoplasmas have been isolated after three months of infection. Clinical symptoms vary from the extremely mild or asymptomatic to the severe. The incubation period is quite varied: one case of a 26-day incubation period was reported in submarine personnel. Symptoms include weakness, headaches or migraine headaches one to three weeks after exposure; they are followed by chest colds and then by pneumonia, which is the most frequent symptoms. A hacking cough, weak respiration, and croup are frequently observed. In rare cases, conjunctivitis is also present. Microplasmas are implicated in many cases of acute bronchitis outbreaks. The symptoms of urethritis and other complications of mycoplasma infections are also described. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none

Card 3/3

ACC NR: AT8032000

SOURCE CODE: UR/0000/67/000/000/0097/0101

AUTHOR: Khurgina, R. A.; Gorskaya, Ye. M.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Morphological and histochemical changes in respiratory organs and lymph system during aerosol immunization. Report I. Single aerosol immunization with diphtheria-pertussis vaccine

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 97-101

TOPIC TAGS: aerosol immunization, diphtheria, whooping cough

ABSTRACT: A single aerosol immunization with diphtheria-pertussis vaccine produced immunomorphological changes first in regional organs (lungs, trachea, and paratracheal lymph nodes). Immunological shifts in the spleen and remote lymph nodes were less pronounced and developed at a later period. The dose of diphtheria toxoid was 150 AU for rabbit or

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ACC NR: AT8032000

100 AU for guinea pigs, and the dose of pertussis vaccine was 60 billion cells for rabbits and 40 billion for guinea pigs. [Abstractor's note: No other data on aerosol immunization are given]. No inflammatory changes in the trachea, bronchi or pulmonary parenchyma were noted after immunization. By 21 days after aerosol immunization, cells of the reticuloendothelial system were normalized. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8032712

SOURCE CODE: UR/3404/65/016/000/0193/0202

AUTHOR: Kleytman, Ye. I.; Vasil'yev, N. V.; Naumova, Ye. S.;  
Kazanskaya, V. G.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok); Tomsk (Tomskiy meditsinskiy institut)

TITLE: Some complex immunobiological reactions in associated vaccination

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 193-202

TOPIC TAGS: vaccination, immunobiologic reaction, animal experiment

ABSTRACT: Results are reported on a series of studies to determine the effect of vaccinal preparations on the immunobiological reactivity of the body. Thirty Chinchilla rabbits weighing 2.5-3 kg were divided into 5 groups. Group I rabbits (6) were administered 0.7 ml/kg of whooping cough-diphtheria-tetanus vaccine of the Ufa Scientific Research Institute of Vaccines and Serums, series 156. Group II rabbits (8) were administered 1.4 ml/kg of whooping cough vaccine of the Perm Scientific Research Institute of Vaccines and Serums, series 156 and 189. Group

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ACC NR: AT8032712

III rabbits (6) received 0.7 ml/kg of adsorbed diphtheria toxoid of the Tomsk Scientific Research Institute of Vaccines and Serums. Group IV animals (4) received 0.7 ml/kg of concentrated tetanus toxoid of the Tomsk Scientific Research Institute of Vaccines and Serums. Six group V animals served as controls. Determination of the erythrocyte sedimentation rate, hemoglobin, erythrocyte, leukocyte, reticulocyte and thrombocyte counts indicated that the combined vaccine did not cause any more significant changes in the blood picture than were caused by the separate components of the vaccine. The humoral factor in nonspecific immunity was studied by determination of the normal hemolysins, complement, lysozyme, and properdin. No changes were noted in the lysozyme titer of animals administered tetanus toxoid; the titer was decreased in rabbits receiving diphtheria toxoid and increased in animals receiving the triple vaccine and whooping cough vaccine. The hemolysin titer was increased in rabbits immunized with diphtheria and tetanus toxoid, and decreased in animals receiving triple vaccine and whooping cough vaccine. Complement was increased by 25-38% in all animals after immunization. There was no marked decrease in the activity of the properdin system following vaccination with the triple vaccine, or its individual components. Total blood proteins decreased after immunization, but returned to prevaccination levels within 7 days. No significant changes were noted in  $\alpha$ -globulin,  $\gamma$ -globulin and albumin levels.  $\beta$  globulins were increased after immunization with the triple vaccine and whooping cough

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ACC NR: AT8032712

vaccines. It is concluded that no marked shifts in the nonspecific immunity factors studied were caused by immunization of the animals with polyvalent vaccine or of its individual components.

Orig. art. has: 4 figures.

[WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: none

Card 3/3

ACC NR: AT8032694

SOURCE CODE: UR/3404/65/016/000/0012/0018

AUTHOR: Kolmakova, A. G.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Data for predicting numbers of TBE carriers in the Tomsk natural focus

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 12-18

TOPIC TAGS: tickborne encephalitis, disease vector, disease carrying mosquito, epizootiology

ABSTRACT: The number of TBE carriers in the Tomsk region, a natural focus of TBE, depends on fluctuations in the small wild mammal population as well as in the population of cattle and other livestock in newly settled areas. Also, the ratio of nymphs to imagoes in the forest zone is important in predicting the incidence of carriers in a given season. Evidently, the average monthly temperature affects the spread of the viral carrier. Figure 1 shows the relationship between the total number

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ACC NR: AT8032694

of nymphs counted in this study and the number that were found in small

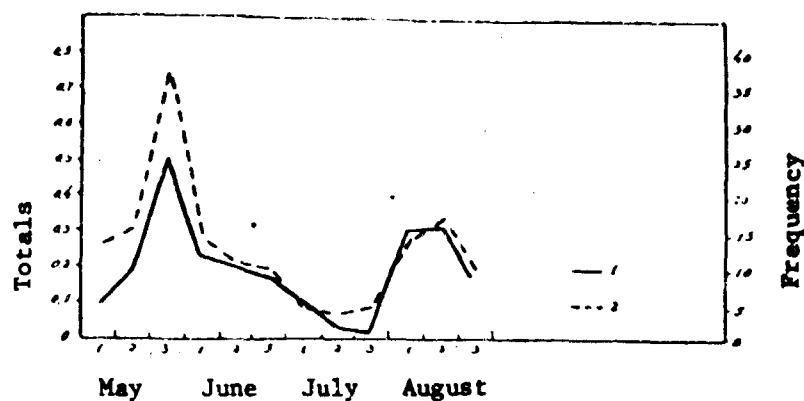


Fig. 1. Abundance and frequency of nymphs on small mammals

1 - Total nymphs; 2 - frequency of nymphs on small animals

Card 2/4

ACC NR: AT8032694

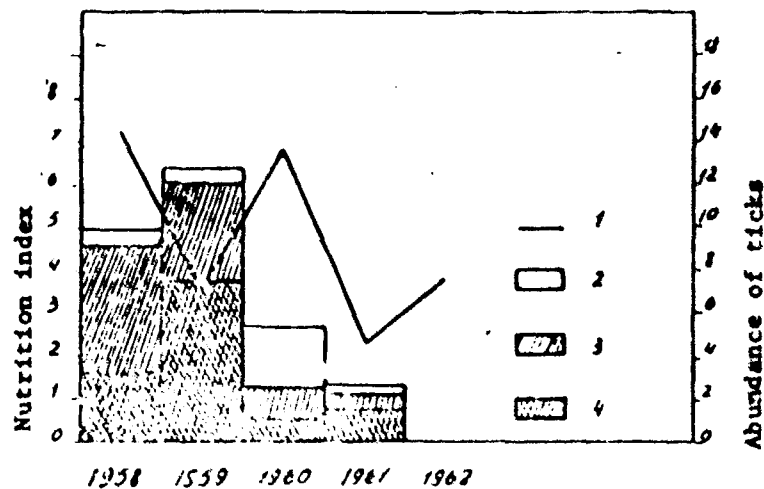


Fig. 2. Variations in feeding habits of nymphs and the number of ticks per season

1 - Number of ticks; 2 - feeding of nymphs per season; 3 - nymph feeding in diapause; 4 - number of nymphs maturing to imago

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ACC NR: AT8032694

mammals. In a season with optimal weather conditions and a large population of small mammal hosts, the tick population, and hence the viral carrier incidence will be high. Orig. art. has: 2 figures and 4 tables. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004

Card 4/4

ACC NR: AP8031399

SOURCE CODE: UR/0433/68/000/009/0012/0014

AUTHOR: Korshunova, A. F. (Candidate of agricultural sciences)

ORG: VIZR

TITLE: Root mold in wheat

SOURCE: Zashchita rasteniy, no. 9, 1968, 12-14

TOPIC TAGS: wheat, fungal disease, plant disease, plant parasite

ABSTRACT: Wheat root mold may be caused by one or a combination of the following fungi: *Helminthosporium sativum*, *Ophiobolus graminis*, *Fusarium culmorum*, *Cercosporella herpetrichoides* and *Wajneriella graminis*. *Cladosporium*, *Pollularia* and *Epilochium* are of no significance in the pathogenesis of the disease. Helminthosporiosis is the greatest hazard for soft and hard winter wheat in areas where the relative humidity is not constant and the moisture content of the soil fluctuates. *Helminthosporium* and *Fusarium* infections are present in western and eastern Siberia and the Far East. Helminthosporiosis affects winter wheat in eastern Siberia (Zavolzh area of the Saratov oblast) where the relative humidity is adequate. In the Baltic republics, Belorussian SSR, western rayons of the Ukrainian SSR, and the foothills of the northern Caucasus where there is excess moisture, winter wheat is affected by *Ophiobolus*

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UDC: 632.4:633.11

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ACC NR: AP8031399

*graminis*, *Fusarium culmorum*, *Cercospora herpotrichoides*, *Helminthospora graminis* and others. Protection of wheat from root mold requires measures directed toward increasing the resistance of the plants to fungi and activation of soil microflora for suppressing the pathogenic properties of the fungi; this includes crop rotation, early autumn planting, and proper fertilization. Treatment of seed with mercury preparations (granosan 1—1.5 kg/ton) is recommended. The majority of the spring wheats (Bezenchukskaya 98, Liutetsens 758, Skala, Saratovskaya 29) are affected by root mold. Saratovskaya 29 and Saratovskaya 38 are more resistant. Of the hard wheats, the most resistant to root mold are Raketa and Khar'kovskaya 46; least resistant are Kustanaiskaya 14 and Narodnaya. Orig. art. has: 2 figures. [WA-50; CBE No. 38] [Xf]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8033964

SOURCE CODE: UR/0016/68/000/010/0095 1103

AUTHOR: Kravchenko, A. T.; Saltykov, R. A.

ORG: Control Institute of Medical Biological Preparations im. Tarasevich (Kontrol'nyy institut meditsinskikh biologicheskikh preparatov)

TITLE: Development of live vaccines in the Soviet Union. Survey. Repor two. Live viral and rickettsial vaccines

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunologii, no. 10, 1968, 98-103

TOPIC TAGS: live vaccine, rabies vaccine, influenza vaccine, typhus vaccine

ABSTRACT: During passage of vaccinia virus strains in different types of animals, the infectious capacity of the substrain increases. In persons receiving vaccinations with such strains, post-vaccinal complications such as rash and increased body temperature sometimes occur. However, in long-term passage in one type of tissue, the infectious capacity of the resultant strains is decreased. The Control Institute recommends strain EM-63, which has immunogenicity with low reactivity.

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UDC: 615.371.001.5(477.576.851.01+576.858)(07.00)

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ACC NR: AP8033964

This vaccine is usually administered, lyophilized in several carrier media such as saccharose with gelatin, animal blood serum, milk, egg albumin with saccharose, and others. The World Health Organization (WHO) recommends peptone. By 1967 standard antirabies preparations, usually rabbit brain emulsions, were in standard use in the Soviet Union and are produced by 10 institutes. Eighty years of experience show this vaccine to be highly effective. A non-allergenic rabies vaccine was approved for use in 1964 and is prepared from sheep or rabbit brains. The fixed rabies vaccine "SAD" is grown in Syrian hamster kidney and does not contain brain tissue protein. Several flu vaccines are described and the one most in use in the Soviet Union is a stabilized attenuated live vaccine. The Control Institute is currently engaged in genetic studies of the influenza virus to determine best strains for adaptation to human tissue with the least number of side effects. By 1967 three types of syrup polio vaccines were in use. These oral vaccines have been quite effective. Other vaccines against the so-called childhood diseases are discussed in some detail. A scrub typhus vaccine developed by several institutes was declared safe for use after 255 passages in chick embryo allantoic membrane. Recently a new strain, an apathogenic mutant of typhoid 5/6B agent, has been obtained and is being tested. Preliminary tests indicated serious side reactions. A killed Q-fever vaccine is highly reactive in humans,

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ACC NR: AP8033964

causing abscesses and other serious side effects. An M-variant has had more success and displays little reactogenicity. Chemical vaccines against *Rickettsia* of Q fever, typhus and tsutsugamushi fevers are under investigation. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 18Dec67

Card 3/3

ACC NR: AP8033598

SOURCE CODE: UR/0016/68/000/009/0088/0092

AUTHOR: Kudelina, R. I.

ORG: Institute of Epidemiology and Microbiology im. Gamaleya AMN SSSR, Moscow (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: The antigenic activity of phase I and II *Rickettsia burneti* strains

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 88-92

TOPIC TAGS: rickettsia burneti, rickettsia, antigen

ABSTRACT: The antigenic structure of strains of *Rickettsia burneti* isolated in different geographic regions of the Soviet Union (strain Shorsher, isolated from a patient in Yaroslavl'; strain Khodzhi, isolated from a patient in Kirghiz SSR; strain B-8, isolated from a common field mouse in Kirghiz SSR; strain Zlata, isolated from cows' milk in Bulgaria; and the standard strain Grita) was studied. Cross-titration of *R. burneti* antigens in the complement-fixation reaction showed that strains Shorsher, B-8, and Khodzhi of different geographical origins are identical. These strains were slightly different from

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UDC: 576.851.71.097.2

ACC NR: AP8033598

the Zlata and Grita strains. Antigenic activity depended on the phase state of the strain. Phase I antigens were passaged 4 to 7 times, and Phase II antigens 14 to 19 times. Phase I antigens were not very active and produced low antibody titers in remote convalescence, while phase II antigens were more active and produced antibodies in higher titers at earlier periods of convalescence. Differences in antigenic activity between the Shorsher, B-8, and Khodzhi strains and the Grita and Zlata strains could only be detected using phase II antigens. The Shorsher and Grita strains possessed the highest degree of antigenic activity and permitted detection of antibodies in homologous and heterologous sera in higher titers than antigens from B-8, Khodzhi or Zlata strains. Sera of guinea pigs infected with Shorsher strain contained antibodies to all antigens, while sera of animals infected with Grita strain contained mostly antibodies to homologous antigen. Apparently Shorsher strain is a stronger antigenic stimulus than Grita strain. Orig. art. has: 1 table and 2 figures. [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: 04Oct67/ ORIG REF: 011

Card 2/2

ACC NR: AT8032542

SOURCE CODE: TR/3407/68/029/000/0076/0152

AUTHOR: Kuz'mina, M. A.

ORG: Institute of Zoology, Academy of Sciences KazSSR (Institut zoologii Akademii nauk Kaz SSR)

TITLE: Comparative characteristics of nutrition among pheasants and tetraonidae in the Soviet Union

SOURCE: AN Kazakh SSR. Institut zoologii. Trudy, v. 29, 1968. Novosti ornitologii Kazakhstana (Ornithological news of Kazakhstan), 75-152

TOPIC TAGS: zoology, ornithology, nutrition

ABSTRACT: The comparative nutrition characteristics of pheasants and tetraonidae in the Soviet Union were investigated, some results of which are shown in Table 1. Figure 1 shows the relationship between snow days and the distribution of pheasants and Tetraonidae in Eurasia.

Card 1/10

UDC: 598.619

ACC NR: AT8032542

Table 1. Biochemical composition of pheasant food in summer, %  
Berries

Plant species	Type of species feeding on this plant	Water	Dry substances	Total sugar	Protein	Cellulose	Salt	Other substances
Common strawberry ( <i>Fragaria vesca</i> )	Black grouse ( <i>Lyrurus tetrix</i> ), <i>Tetrastes bonasia</i> , <i>Tetrao urogallus</i> , willow ptarmigan ( <i>Lagopus lagopus</i> ), Hungarian partridge ( <i>Perdix perdix</i> )	83.02	16.98	6.35	1.78	4.05	1.01	3.79
Forest raspberry (No Latin name given)	Black grouse ( <i>Lyrurus tetrix</i> ), <i>Tetrastes bonasia</i> , <i>Tetrao urogallus</i>	80.99	19.01	6.58	1.21	4.46	0.60	5.16
<i>Rubus caesariensis</i>	Black grouse ( <i>Lyrurus tetrix</i> ), <i>Tetrastes bonasia</i> , Siberian spruce grouse ( <i>Tetrao falcipectus</i> ), <i>Tetrao urogallus</i> , willow ptarmigan ( <i>Lagopus lagopus</i> ), rock ptarmigan ( <i>Lagopus mutus</i> )	92.20	7.80	2.91	2.04	3.96	0.38	8.49
Cowberry ( <i>Vaccinium vitis-idaea</i> )	Black grouse ( <i>Lyrurus tetrix</i> ), <i>Tetrastes bonasia</i> , Willow ptarmigan ( <i>Lagopus lagopus</i> ), Caucasian black cock ( <i>Lyrurus m. kaspianus</i> )	83.0	17.00	6.91	0.57	1.49	0.23	7.80

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ACC NR: AT8032542

Table 1. (Cont.)

Whortleberry ( <i>Vaccinium myrtillus</i> )	Black grouse ( <i>Lysurus tetriz</i> ), ( <i>Tetrastes bonasia</i> ), Siberian spruce grouse ( <i>Tetrao falcoipennis</i> ), <i>Tetrao urogallus</i> , Willow ptarmigan ( <i>Lagopus lagopus</i> ), Caucasian black cock ( <i>Lyrurus mlkocslawski</i> )	87.35	12.65	5.59	1.35	2.06	6.43	3.22
<i>Vaccinium oxycoccus</i>	Black grouse ( <i>Lysurus tetriz</i> ), ( <i>Tetrastes bonasia</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> ), Siberian spruce grouse ( <i>Tetrao falcoipennis</i> ), <i>Tetrao urogallus</i>	88.25	11.75	2.84	0.32	2.01	6.22	3.36
<i>Agrostis alba</i>	Pheasant ( <i>Passanidae</i> )	79.7	4.0	3.3	0.8	4.3	9.0	2.2
<i>Agropyrum repens</i>	<i>Tetrao urogallus</i> , Black grouse ( <i>Lysurus tetriz</i> ), Hungarian partridge ( <i>Perdix perdix</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> ), Pheasant ( <i>Passanidae</i> ), Caucasian snow cock ( <i>Tetraogallus casicus</i> )	53.8	4.1	3.1	1.1	11.7	16.6	2.7

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ACC NR: AT8032542

Table 1. (Cont.)

## Green plants

Plant species	Type of species feeding on this plant	Water	Protein	Albumin	Fats	Cellulose	Nitrogenless extractable substances	Salt
<i>Vicia cracca</i>	<i>Tetrao urogallus</i> , black grouse ( <i>Lysurus tetriz</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> )	73.0	5.4	4.3	0.9	8.2	10.6	1.9
<i>Melilotus dentatus</i>	<i>Tetrao urogallus</i> , Black grouse ( <i>Lysurus tetriz</i> )	73.2	4.4	3.3	0.5	9.7	10.5	1.7
<i>Trifolium pratense</i>	<i>Tetrao urogallus</i> , Black grouse ( <i>Lysurus tetriz</i> )	78.0	5.5	3.9	0.6	3.5	10.7	1.7
<i>T. lupinaster</i>	<i>Tetrao urogallus</i> , ( <i>Tetrastes bonasia</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> ), black grouse ( <i>Lysurus tetriz</i> )	75.0	3.8	2.4	0.9	7.0	11.8	1.5
<i>T. repens</i>	( <i>Tetrastes bonasia</i> ), <i>Tetrao urogallus</i> , black grouse ( <i>Lysurus tetriz</i> ), Keklik, Caucasian snow cock ( <i>Tetraogallus casicus</i> )	80.0	4.9	3.8	0.9	2.2	10.4	1.6

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ACC NR: AT8032542

Table 1. (Cont.)

Alfalfa ( <i>Medicago sativa</i> )	Francolin ( <i>Francolinus vulgaris</i> ), Pheasant ( <i>Phasianidae</i> ), Hungarian partridge ( <i>Perdix perdix</i> ), Caucasian snow cock ( <i>Tetraogallus casicus</i> ), Caucasian black cock ( <i>Lysurus mlkosiewiczi</i> )	75.6	5.0	4.0	0.8	6.4	9.8	2.4
<i>Lathyrus pratensis</i>	<i>Tetrao urogallus</i> , Black grouse ( <i>Lysurus tetriz</i> )	75.8	6.9	6.4	0.7	4.6	10.1	1.9
<i>Lathyrus songoricus</i>	Keklik	72.5	4.5	3.2	0.9	7.2	13.2	1.7
<i>Deschampsia caespitosa</i>	<i>Tetrao urogallus</i> , Black grouse ( <i>Lysurus tetriz</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> )	66.8	2.7	2.3	0.6	10.1	17.4	2.4
<i>Poa alpina</i>	Caucasian snow cock ( <i>Tetraogallus casicus</i> )	73.3	3.0	2.2	0.8	7.7	13.3	1.5
<i>P. pratensis</i>	Caucasian snow cock ( <i>Tetraogallus casicus</i> )	63.8	4.3	3.2	0.9	12.7	16.0	2.3

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ACC NR: AT8032542

Table 1. (Cont.)

<i>Eriophorum vaginatum</i>	<i>Tetrao urogallus</i> , Siberian capercaillie ( <i>T. parvirostris</i> ), Black grouse ( <i>Lysurus tetriz</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> )	75.1	3.9	3.1	1.0	7.3	11.5	1.2
<i>Eurotia oeratoidea</i>	Caucasian snow cock ( <i>Tetraogallus casicus</i> )	77.3	5.2	5.0	1.0	5.2	8.2	3.1
<i>Eurotia oeratoidea</i>	Black grouse ( <i>Lysurus tetriz</i> )	51.2	3.9	3.0	3.2	16.1	21.3	4.3
<i>Ixiolirion tataricum</i>	<i>Deschampsia</i> Keklik	33.7	5.8	-	0.7	6.0	47.1	6.7
Green plants (Composition by dry weight)								
Plant species	Type of species feeding on this plant	Salt	Protein	Albumin	Fats	Cellulose	Nitrogenless extractable substances	Carb. matter
<i>Maianthemum bifolium</i>	Black grouse ( <i>Lysurus tetriz</i> ), <i>Tetrao urogallus</i> , ( <i>Actitis hypoleucos</i> )	11.8	11.9		4.8	26.4	45.1	

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Table 1. (Cont.)

<i>Dryas punctata</i>	Willow ptarmigan ( <i>Lagopus lagopus</i> ), Rock ptarmigan ( <i>Lagopus mutus</i> )	4.11	8.37	7.31	8.7	32.2	46.62	
<i>Filipendula ulmarina</i>	Black grouse ( <i>Lysurus tetriz</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> ), Tetrao urogallus, ( <i>Tetrastes bonasia</i> )	4.7	8.7	7.8	3.2	26.1	57.3	
<i>Sanguisorba officinalis</i>	Black grouse ( <i>Lysurus tetriz</i> ), Willow ptarmigan ( <i>Lagopus lagopus</i> ), Hungarian partridge ( <i>Pardix perdix</i> )	6.12	13.56		1.56	37.22	41.54	Ca.P.
<i>Antennaria dioica</i>	Black grouse ( <i>Lysurus tetriz</i> )	8.3	9.3		3.7	25.2	53.5	

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ACC NR: AT8032542

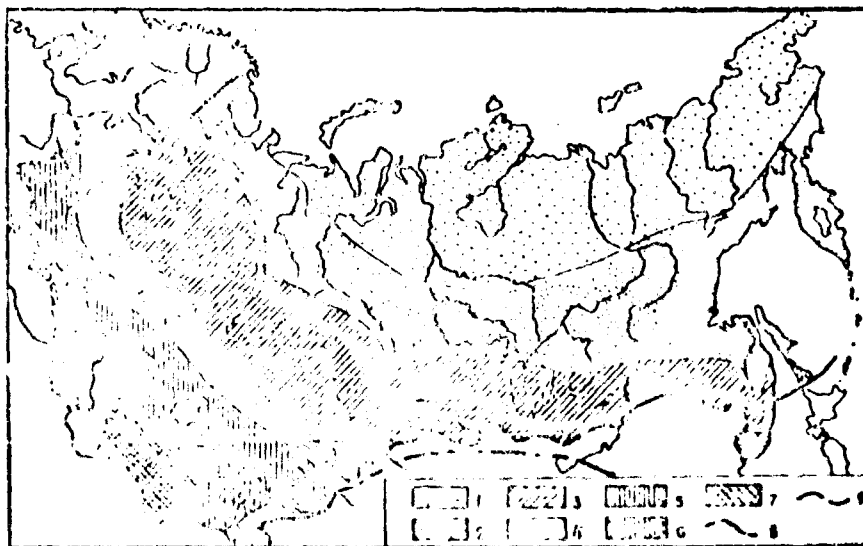


Fig. 1. Length of snow cover and boundaries of Tetraonidae and pheasants

1 - More than 220 days; 2 - 180—220 days; 3 - 140—180 days; 4 - 100 to 140 days; 5 - 60—100 days; 6 - 20—60 days; 7 - less than 20 days;  
 8 - northern range of pheasant population; 9 - southern boundary of Tetraonidae population

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ACC NR: AT8032542

Table 2. Areas where the nutrition of the willow grouse was studied

Research region	No. of birds studied	Time of study (month)	Plant cover (food sources)		Animal food	
			Fami- lies	Spec- ies	Or- ders	Fami- lies
Kola peninsula	250	I-XII	26	More than 50	7	11
Timan tundra	151	III-VIII	16	37	3	6
Kotel'nyy island	25	V-IX	8	14	—	—
Southern Yamal	59	V-IX	14	20	2	3
Leningrad oblast	17	VIII-IX	4	5	1	1
Northern Kazakhstan (Naurzumskiy zapovednik [nature preserve] North Kazakhstan oblast)	114	I-XI	17	42	5	9
Western Siberia (Barabinskii and Kulundinskii steppes)	263	II IV-IX		Above 75		14
Transbaikal (Dusse- alin' ridge)	4	VIII	7	10	1	1

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ACC NR: AT8032542

Table 3. Composition of plant foods consumed by the willow grouse (*Lagopus lagopus*) in different seasons (numbers indicate number of species)

Nutrient group	Winter	Spring	Summer	Autumn
Rameous plants	16	11	—	15
Berries	7	5	16	10
Green plants and flowers	9	32	80	27
Seeds and nuts	6	2	30	37
Lower plants	1	1	3	3

Table 2 shows the areas in which typical representatives of these birds were studied. There are five basic classes of food sources utilized by these birds, the proportions of which depend on the season of the year. Data on each species studied are included in the text. Orig. art. has: 20 tables and 2 figures. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 10/10



ACC NR: AP8022175

SOURCE CODE: 0016/68 000/009 101/0104

AUTHOR: Kuznetsov, V. I.

ORG: Zoological Institute, Academy of Sciences SSSR, Leningrad  
(Zoologicheskii Institut Akademii nauk SSSR)

TITLE: New leafeaters of the Kurile Islands

SOURCE: Entomologicheskoye obozreniye, v. 47, no. 3, 1968, 567-588

TOPIC TAGS: insect, plant pest, zoology, economic entomology

ABSTRACT: Collections in the southern part of the Kurile Islands yielded a new species of *Phymodonta* and seven new species of leafeater different but derived from relatives in the Japanese Islands. *Phymodonta tenerana* varied greatly in its geographic distribution and can be divided into geographically-based subspecies. *Epimotia solidaria* is distinguished by its summer diapause in the pronymph stage. Orig. art has: 21 figures. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 001/ CTH REF: 001

Card 1/1

UDC: 595.782(571.64)

ACC NR: AP8033600

SOURCE CODE: 0016/68 000/009 101/0104

AUTHOR: Kvitash, V. I.; Kiris, N. B.

ORG: Odessa Institute of Virology and Epidemiology im. Mechnikov  
(Odesskiy institut virusologii i epidemiologii)

TITLE: The stimulating effect of linol on formation of group-specific complement-fixing antibodies to adenovir

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 101-104

TOPIC TAGS: adenovirus, antibody formation

ABSTRACT: Comparison of the stimulating effect of various adjuvants in formation of group-specific complement-fixing antibodies to adenoviruses showed that a mixture of linol (a mixture of methyl esters of laic acid, linoleate, and linolenic acid) with autoclaved BCG (Bacillus Calmette-Guerin) as adjuvant increased the antigenic properties of adenovirus serotype 6. Adjuvant consisting of linol and BCG was more effective than complete adjuvants of the Freund's type and other stimulators used

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UDC: 615.373.34:616.988.5-079

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ACC NR: AP8033600

such as peach oil with BCG). Adjuvant from linol and BCG can be conveniently used in industrial conditions to obtain group-specific anti-adenovirus sera. Orig. art. has: 1 table and 1 formula.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 30Jun67/ ORIG REF: 014/ OTH REF: 003

Card 2/2

ACC NR: AP8035731

SOURCE CODE: UR/0477/68/000/006/0038/0040

AUTHOR: Lavrinenko, G. V.

ORG: Department of Hygiene, Minsk Medical Institute (Kafedra gigieny Minskogo meditsinskogo instituta); Department of Toxicology, Belorussian Scientific Research Sanitary-Hygiene Institute (Otdel toksikologii Belorusskogo nauchno-issledovatel'skogo sanitarno-gigienicheskogo instituta)

TITLE: Cumulative properties and anticholinesterase activity of the organic phosphorus nematocides Tsinofofos and OVS-13

SOURCE: Zdravookhraneniye Belorussii, no. 6, 1968, 38-40

TOPIC TAGS: anticholinesterase, nematode, vermicide, organic phosphorus compound

ABSTRACT: In a study to determine the cumulative properties of Tsinofofos and OVS-13, 70 white rats were divided into 7 groups of 10 animals; each group was administered either preparation daily for 1 month in doses calculated at 1/5, 1/10, and 1/20 of LD<sub>50</sub>. There were no symptoms of intoxication in animals administered multiple doses of Tsinofofos in the indicated doses. In animals administered OVS-13, the first

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UDC: 661.718.1.615-092.24-092 9

ACC NR: AP8035731

symptoms of intoxication appeared within 2—3 days after multiple doses of 1/5 of LD<sub>50</sub>. The coefficient of cumulation was 1.98 following daily administration of 1/5 of LD<sub>50</sub>. The effect of Tsinofofos and OVS—13 on cholinesterase activity in the organs and tissues of the animals was

Organs and tissues examined	Decreased cholinesterase activity at different times in % compared to control					
	1 hr		24 hr		72 hr	
	Tsinofofos	OVS—13	Tsinofofos	OVS—13	Tsinofofos	OVS—13
Cerebral cortex	57,9	21	42,1	68,5	31,6	47,4
Subcortical region	51,9	34,4	40,8	74,1	37,1	48,2
Erythrocytes	81	42,9	62	85,8	66,7	76,2
Blood plasma	72,3	50	27,8	83,4	38,9	55,6
Liver	51,7	44,5	48,4	90,6	22,3	50
Heart	32	68	36	88	16	48
Kidney	50	63	50	82	30	35

Card 2/3

ACC NR: AP8035731

studied 1 hr, 24 hr, and 72 hr after administration into the stomach of maximum tolerated doses. Cholinesterase was determined by the Hestrin method. Results are shown in the Table. Orig. art. has: 1 table. [WA-50; CBE No. 381(XF)]

SUB CODE. 06/ SUBM DATE: none

Card 3/3

ACC NR: AP8035379

SOURCE CODE: UR/G439/68/047/009/1422/1425

AUTHOR: Leont'yeva, M. N.

ORG: Gor'ky State University (Gor'kovskiy gosudarstvennyy universitet)

TITLE: Distribution of sandy soils and the Great Gerbil

SOURCE: Zoologicheskiy zhurnal, v. 47, no. 9, 1968, 1422-1425

TOPIC TAGS: zoogeography, gerbil, mammal

ABSTRACT: Maps showing the distribution of the Great Gerbil according to soil and topography were made on the basis of field studies east

Card 1/4

UDC: 599.323.4:591.9

ACC NR: AP8035379

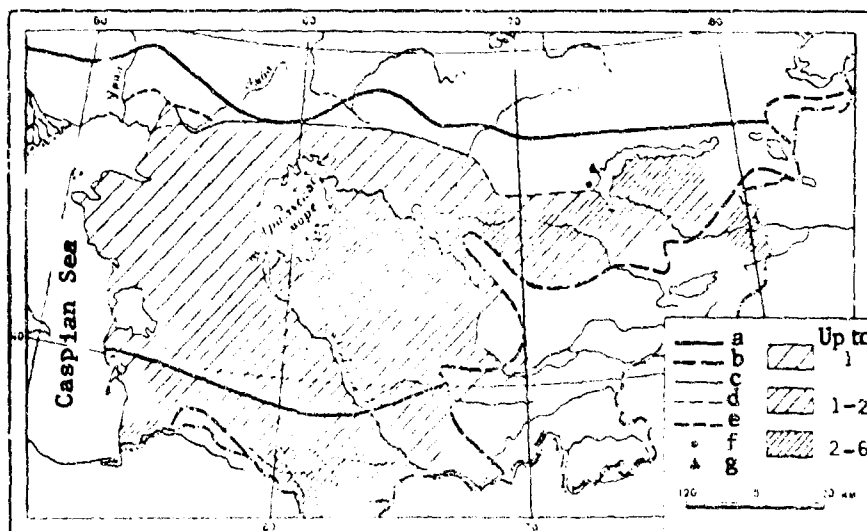


Fig. 1. Distribution of the Great Gerbil and variations in its northern range in the Soviet Union

Range according to F. N. Mil'kov (1964) a - natural scrub and sub-tropical desert zone b - mountain province, northern boundary of the range; c - 1958 boundaries; d - 1956 boundaries; e - 1963 boundary; f - 1967 expedition; g - 1965 boundary. Crosshatched areas indicate number of burrows/ha.

Card 2/4

ACC NR: AP8035379

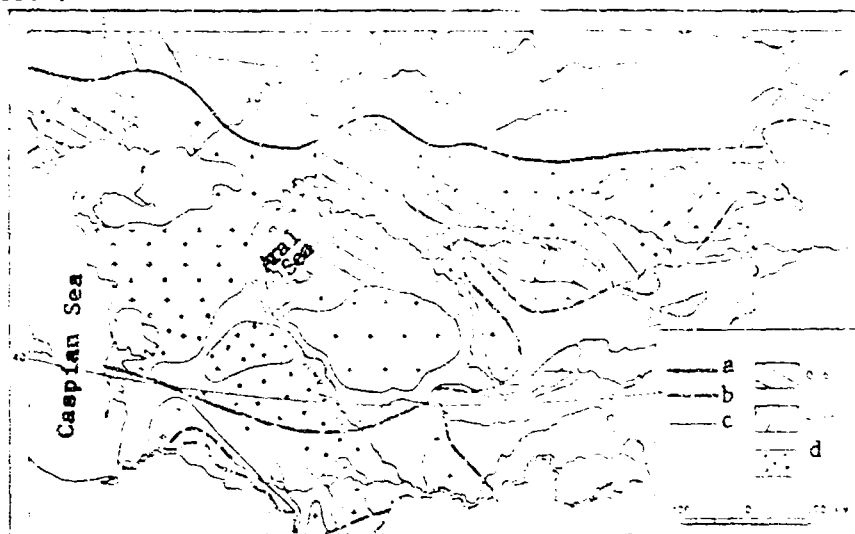


Fig. 2. Water table levels in natural scrub and desert subtropical habitat zones of the Great Gerbil (*Rhombomys opimus*)

a - Natural scrub and subtropical desert zone; b - mountain province;  
c - 1937 boundaries; d - more than 10;

Card 3/4

ACC NR: AP8035379

of the Caspian Sea. Orig. art. has: 2 figures.

[WA-50; CBE No. 38] [LF]

SUB CODE: 06/ SUBM DATE: none

Card 4/4

AUTHOR: Levina, R. I. (Candidate of medical sciences)

ORG: Belorussian Scientific Research Sanitation and Hygienic Institute, Minsk (Belorusskiy nauchno-issledovatel'skiy sanitarno-gigiyenicheskiy institut)

TITLE: The viability of *Str. faecalis*, *S. typhosa* and *E. coli* in river water

SOURCE: Gigiyena i sanitariya, no. 10, 1968, 103-104

TOPIC TAGS: escherichia coli, bacteria viability, water pollution

ABSTRACT: The viability of *E. coli* in river water (from the Svisl' River) was 18.5 days at 20°C and 22 days at 1°C. The viability of *Str. faecalis* was 14 days at 20°C and 27.6 days at 1°C. Samples of river

UDC: 614.777:543.39:576.851.

48/.49+576.851.48/49.095.15/.16

Card 1/3

ACC NR: AP8035417

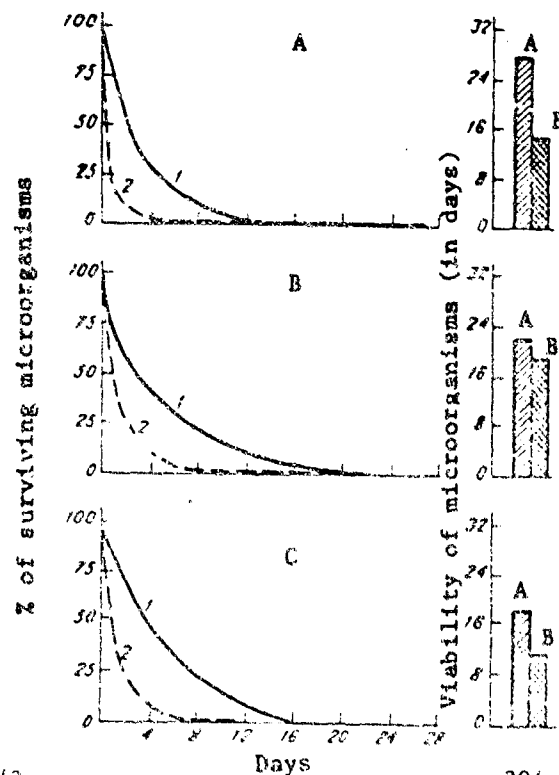


Fig. 1. Dynamics of dying off of *Str. faecalis* (a), *E. coli* (b) and *S. typhosa* (c) in river water at 1° (1 and A) and 20° (2 and B).

Card 2/3

ACC NR: AP8035417

water were artificially infected with bacteria in separate doses of 2000—4000 cells per ml. The rate of dying off of these bacteria in river water is shown in Figure 1. Orig. art. has: 1 figure.  
[WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: 06Mar67/ ORIG REF: 001

Card 3/3

ACC NR: AT8031984

SOURCE CODE: UR/0000/67/000/000/0026/0029

AUTHOR: Lipin, S. I.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Birds in rickettsiosis foci in the Angara River area

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 26-29

TOPIC TAGS: Q fever, rickettsial disease, tick

ABSTRACT: The possible role of birds in maintaining foci of Asian tick-borne rickettsiosis and Q-fever in the Angara River area was established on the basis of serological tests and relationships between birds and ticks, and wild and domestic animals. Sera of ducks and seagulls did not react positively in the complement fixation test with rickettsial antigens. Preimaginal forms of *I. persulcatus* were found on woodcocks and also on great spotted woodpeckers, capercaillies and hazel hens. The rock-dove is naturally susceptible to Asian tickborne rickettsiosis.

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ACC NR: AT8031984

*I. persulcatus* ticks were also found on kestrels and buzzards, and a *D. nuttalli* nymph was found on a Ural owl. All predatory birds can of course become infected with Q-fever by the alimentary route. *D. nuttalli* larvae were also found on hoopoes (typical inhabitants of the Angara forest-steppe). Serum from one hoopoe gave a positive reaction in the complement fixation inhibition test with *R. burneti* antigen. Seven out of nine species of the Corvidae family were hosts for *I. persulcatus*, *D. nuttalli*, or *D. silvarum*, and incomplete antibodies to Asian tick-borne rickettsiosis were found in the blood of the Daurian jackdaw. Species such as ravens, crows, and magpies feed on rodents and parasites of agricultural animals and thus are most probably in contact with the agent of Q-fever. Starlings, which nest in settlements and feed on *I. plumbeus*, constitute another possible epidemiological link. Bullfinches and lesser redpolls are spontaneously infected with tickborne rickettsiosis, and the former species is a host of *I. persulcatus*. Antibodies to both rickettsial diseases were found in the blood of house sparrows and tree sparrows, and both *I. plumbeus* and *D. nuttalli* ticks were found in the nests of tree sparrows. A total of 10 out of 18 species of Turdidae in Angara were hosts of *I. persulcatus* and *I. plumbeus*, and antibodies to both rickettsia were found in the blood of wheatears. The great chickadee is susceptible to Q-fever, lives in

Card 2/3

ACC NR: AT8031984

settlements, and thus may be of interest. Gamasid ticks, fleas, and other blood-sucking insects, often found in bird nests, may also participate in rickettsial foci. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 3/3

- 206 -



ACC NR: AT8031985

SOURCE CODE: UR/0000/67/000/000/0030/0033

AUTHOR: Lipin, S. I.; Gel'fand, A. S.; Sokolova, L. K.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: The susceptibility of birds to the agent of Q-fever

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 30-33

TOPIC TAGS: Q fever, rickettsia burneti, epidemiologic focus

ABSTRACT: Artificial infection of great chickadees (*Parus major*) and kestrels (*Falco tinnunculus*) typical inhabitants of Q-fever foci in eastern Siberia with chick-embryo yolk sacs containing abundant *Rickettsia burneti* (yellow-throated mouse strain) was conducted. Organs from infected birds were injected into guinea pigs, which showed temperature rises in periods characteristic for Q-fever. Complement-fixing antibodies were found in the blood of infected guinea pigs on the third passage in a titer of 1:80, and on the fourth passage in titers

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ACC NR: AT8031985

from 1:640 to 1:1280. Experiments showed that both great chickadees and kestrels can be infected with Q-fever by eating food infected with *R. burneti*. Orig. art. has: 1 table. [WA-50; CRE No. 38][JS]

SUB CODE: 06/ SUM DATE: none

ACC NR: AT8031991

SOURCE CODE: UR/0000/67/000/000/0053/0056

AUTHOR: Litvinenko, R. P.; Kuzina, A. I.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Toxoplasmosis among wild vertebrates in the Angara River area forest-steppe

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidcmiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 53-56

TOPIC TAGS: complement fixation reaction, toxoplasmosis, eqizootiology

ABSTRACT: Results of study of the blood of mammals and birds trapped in the Ust'-Uda and Tulun rayons of Irkutsk oblast are shown in Table 1. *Toxoplasma* could not be isolated from blood or organs of animals or birds by bioassay. The existence of a toxoplasmosis focus in this area is

Card 1/3

ACC NR: AT8031991

Table 1. Results of study of sera of wild animals for toxoplasmosis

Species	Complement fixation test of wil' animal sera		
	No. of Specimens	Positive	%
House mouse	13	—	—
Norway rat	12	—	—
Narrow-skulled vole	8	—	—
Long-tailed Siberian suslik	87	8	9.2
Daurian hamster	3	—	—
Common field mouse	3	—	—
Striped field mouse	2	—	—
Magpie	45	—	—
Field fare	9	—	—
Starling	7	1	14.2
Jackdaw	13	—	—
Pock dove	56	2	3.57
Rook	26	2	7.69
Herring-gull	5	—	—
House sparrow	63	—	—
Tree sparrow	74	—	—
Crow	9	—	—
Isabelline wheatear	10	—	—
Ruff	1	—	—

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ACC NR: AT8031991

Table 1. (Cont.)

Widgeon	1	—	—
Osprey	1	—	—
Mallard	2	—	—
Oriental turtledove	2	—	—
Whimbrel	1	—	—
Hoopoe	3	—	—
Kestrel	1	—	—
Ural owl	1	1	—
American Golden Plover	1	—	—

confirmed by the presence of foxes and polecats, sources of infection, in considerable amounts. Orig. art. has: 1 table.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 3/3

ACC NR: AP8035423

SOURCE CODE: UR/0433/68/000/010/0051/0052

AUTHOR: Litvinov, A. S. (Member of Prokhorovsk agriculture production administration of Belgorod Province)

ORG: Prokhorovka Board of Agricultural Production, Belgorod oblast (Prokhorovskoye proizvodstvennoye upravleniye sel'skogo khozyaystva)

TITLE: Simazin and white blister (of corn)

SOURCE: Zashchita rasteniy, no. 10, 1968, 51-52

TOPIC TAGS: plant fungus, corn, fungicide

ABSTRACT: Laboratory and field trials of the fungicidal activity of simazin [2-chloro-4,6-bis-(ethylamino)-S-triazine] with respect to chlamydospores of *Ustilago zeae*, the agent of white blister (a maize smut), conducted in 1964—1965 in Ural'sk oblast showed that a simazin concentration of 0.5—2.5% prevented growth of chlamydospores. The maximum dose of simazin tolerated by corn without damage is a concentration of 3.75%. In field trials 3.2 kg/hectare of simazin was introduced into the soil before sowing of corn artificially infected with the fungus. In addition plants were sprayed with a 0.5% simazin suspension

Card 1/2

UDC: 632.954:582.285.1

ACC NR: AP8035423

(300—400 liters/hectare). This combined treatment decreased smut infection by 60—70% and had no adverse effect on corn plants. The yield of corn plants for fodder increased 30—40 centners/hectare, and many weeds were killed as well. Orig. art. has: 1 table.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8032173

SOURCE CODE: UR/0476/68/047/003/0541/0552

AUTHOR: Lopatin, I. K.

ORG: Tadzhik State University, Dushanbe (Tadzhikskiy gosudarstvennyy universitet)

TITLE: New leaf-eater species in the fauna of Central Asia and Kazakhstan

SOURCE: Entomologicheskoye obozreniye, v. 47, no. 3, 1968, 541-552

TOPIC TAGS: plant pest, insect, zoology

ABSTRACT: Insect collections made in Central Asia and Kazakhstan included 4 new leaf-eaters of the genus *Thelyterotarsus*, 3 species and 2 subspecies of the genus *Pachybrachys*, 2 species of the genus *Cryptocephalus*, 3 species of the genus *Chrysomela* and 2 species of the genus *Oreomela*, first discovered in Tadzhikistan. Described are: *Thelyterotarsus gurejevae*, *Thelyterotarsus jacobsoni*, *Thelyterotarsus intermedius*, *Thelyterotarsus tadzhicus*, *Pachybrachys jacobsoni*, *Pachybrachys altimontanus*, *Pachybrachys issykensis*, *Pachybrachys issykensis gussakovskii*, *Pachybrachys atraphaxidis*, *Pachybrachys instabilis merkenensis*, *Cryptocephalus (Asiopue) kerzhneri*, *Cryptocephalus shabalinae*, *Chrysomela*

Card 1/2

UDC: 595.768.1(574+575)

ACC NR: AP8032173

*helenae*, *Chrysomela ballioni*, *Chrysomela kryzhanovskii*, *Oreomela medvedevi*, and *Oreomela tarbagataica*. Orig. art. has: 21 figures  
[WA-50; CBE No. 38] [P]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 002

Card 2/2

ACC NR: AT8033128

SOURCE CODE: UR/3289/67/048/000/0017/0015

AUTHOR: Lysikov, V. N. (Candidate of agricultural sciences);  
Kazantsev, E. F.; Orinshteyn, Z. A.; Foka, M. I.

ORG: Kishinev Agricultural Institute im. M. V. Frunze, Ministry of  
Agriculture SSSR (Kishinevskiy sel'skokhozyaystvennyy institut  
Ministerstva sel'skogo khozyaystva SSSR)

TITLE: Study of the effect of chemical mutagens on certain biological  
objects by the electron paramagnetic resonance method

SOURCE: Kishinev. Sel'skokhozyaystvennyy institut. Trudy, no. 46,  
1967. Biofizika, vypusk 3 (Biophysics, third edition), 12-15

TOPIC TAGS: chemical mutagen, mutation, mutant, electron para-  
magnetic resonance, alkylating agent

ABSTRACT: Mutagens were administered in distilled water at the following  
concentrations: 10%, 1%, 0.1%, 0.01%, 0.001%, 0.0001%, 0.00001%,  
0.000001%, and 0.0000001%. The organisms were kept in these solutions  
for 24 hr and then washed in clean distilled water for 10-15 min and  
dried at room temperature for 24 hr in preparation for EPR studies.  
Results of these studies are shown in Figures 1, 2, 3, 4, 5, and 6.

Card 1/5

ACC NR: AT8033128

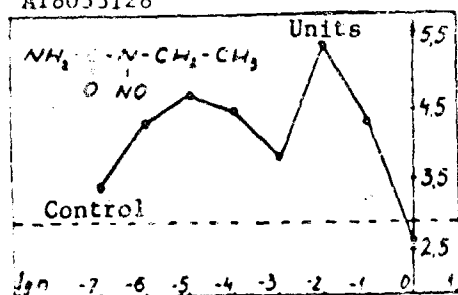


Fig. 1. Graph of the relationship between concentration of free radicals in spores treated with nitrosoethylurea and the concentration of mutagen

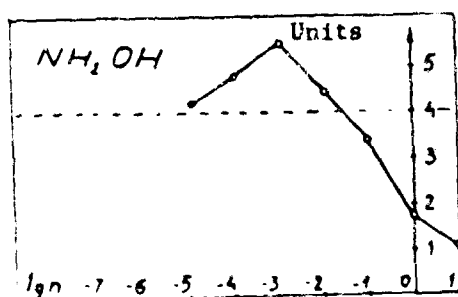


Fig. 2. Relationship of free radical concentration in spores treated with hydroxylamine to the concentration of mutagen

Card 2/5

ACC NR: AT8033128

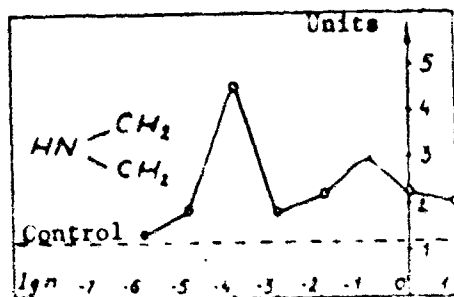


Fig. 3. Relation between the concentration of free radicals in ethyleneimine-treated spores and the concentration of mutagen

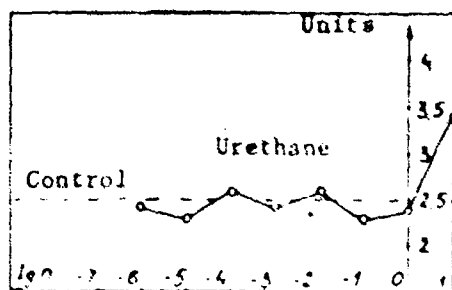


Fig. 4. Relation between the free radical concentration in spores treated with urethane and the concentration of mutagen

Card 3/5

ACC NR: AT8033128

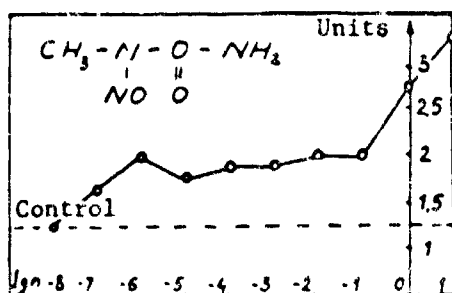


Fig. 5. Relation between free radical concentration in grape seeds treated with nitrosoethylurea and the concentration of mutagen

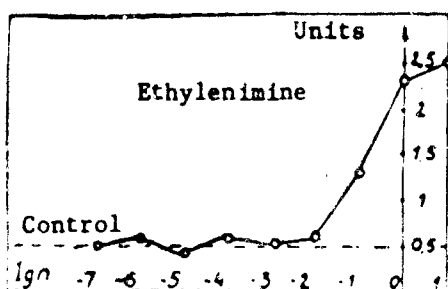


Fig. 6. Relationship between the concentration of free radicals in grape seeds treated with ethylenimine and the concentration of mutagen

Cord 4/5

ACC NR: AT8033128

The action of mutagenic substances on corn rot fungal spores was followed by the increase in free radical yield at microconcentrations of mutagen. As shown by the figures for certain values of mutagens free radical yield was at a maximum. This is contrasted with the inconclusive results obtained by treatment of grape seeds. Orig. art. has: 6 figures. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUM DATE: none

Cord 5/5

ACC NR: AT8033768

SOURCE CODE: UR/3287/67/021/000/0137/0143

AUTHOR: Man'ko, I. V.; Kotovskiy, B. K.; Stolyarets, V. I.

ORG: none

TITLE: Research on the alkaloids of *Symphytum officinale* L. or Russian *Symphytum asperum* Lepech. Report II.

SOURCE: Leningrad. Khimiko-farmatsevticheskiy institut. Trudy, v. 21. 1967. Voprosy farmakognizii (Pharmacognostic problems), no. 4, 137-143

TOPIC TAGS: alkaloid, pharmacognosy, plant chemistry

ABSTRACT: *Symphytum asperum* Lepech. was collected during the period of flowering from the vicinity of Bakhmaro in the Adzharskaya ASSR at 1500—1700 m. It was determined by the weight method proposed by I. V. Man'ko that the percentage of alkaloid was 0.19% in the stalks and 0.30% in the roots. Chromatographic analysis revealed that the alkaloids in the stalks and roots belonged to the group of tertiary amines. The alkaloids were differentiated from each other by the designation Rf. The Rf of stalk alkaloid A was similar to the Rf of heliosupin[?]; the Rf of root alkaloid B was similar to laziokarpin. Alkaloid A was characterized

Card 1/2

ACC NR: AT8033768

by production of crystalline picrate with a melting point of 128—130°. This was similar to the melting points of makrotomin, ekhiumin and ruzorin. For identification of these alkaloids, natural mixtures of alkaloids was extracted from *Macrotomin echinoides* L. Boiss. and *Echium plantagineum* L. It was determined by paper chromatography that alkaloid A was not identical to makrotomin and the alkaloid from *Echium plantagineum* L. Heliosupin and alkaloid A were also found to be nonidentical; this was determined on the basis of depression of the melting point of the picrates of these alkaloids. Although paper chromatography demonstrated that alkaloid B and laziokarpin were identical, results of purification and crystallization by the method used by Men'shikov for extraction of laziokarpin from *Heliotropin lasiocarpum* suggested that alkaloid B and laziokarpin are not identical. This will be determined in a future experiment by optical conversion of both substances. Orig. art. has: 3 tables. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 004

Card 2/2



ACC NR: AT8031997

SOURCE CODE: UR/0000/67/000/000/0078/0082

AUTHOR: Maramovich, A. S.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: The epidemiology of typhoid-paratyphoid infections in cities with different disease levels

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 78-82

TOPIC TAGS: typhoid fever, water pollution

ABSTRACT: Comparison of cities A and B, located a short distance from each other on the Angara River in Irkutsk oblast, showed that the very different epidemiological situation with respect to typhoid and paratyphoid in these cities was due to differences in the water supply and the public health situation. In city A, relatively safe with respect to typhoid and paratyphoid, the peak of disease occurred in the summer-fall, as compared with a fall-winter peak in unsafe city B. In city B patients

Card 1/2

ACC NR: AT8031997

15—19 yr of age were most afflicted, as compared with 50—59 yr and 10—14 yr in city A. In city B workers and men were most frequently affected, as compared with school children and housewives in city A. City A is of modern construction, with a centralized water supply and a nearly complete sewer system. Most of city B is without a sewer system: water is supplied from the Angara River and chlorinated only. In city B typhoid and paratyphoid are probably transmitted from the water system and spread by incorrect diagnosis and improper treatment (late diagnosis and late hospitalization). [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8032699

SOURCE CODE: UR/3404/65/016/000/0076/0079

AUTHOR: Mastenitsa, M. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: The role of adenoviruses in the etiology of diseases in Tomsk

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 76-79

TOPIC TAGS: etiology, adenovirus, respiratory virus disease

ABSTRACT: Study of the nasopharyngeal and conjunctival secretions of 206 patients (175 of them children) with catarrh of the upper respiratory passages in Tomsk showed that 40% of these diseases were caused by adenoviruses. Adenoviruses types 3 and 7 were predominant, with types 1, 2 and 4 less important. Types 5 and 6 were not encountered. Studies were conducted in 1961--1962. Viruses were isolated on transplanted HeLa and Hep cells, which are superior to human embryonic fibroblasts and other cell lines and maintained on medium 199 with human serum. The cytopathic

Card 1/2

ACC NR: AT8032699

effect of the virus in tissue culture appeared on the 4--7th day after infection, with complete destruction of cells by the 6--7th day. Increase in antibody level more than four-fold (considered diagnostic) was observed in 31 out of 49 paired sera of patients from whom adenoviruses had been isolated. In all cases the virus type coincided with antibody type. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 003

Card 2/2

ACC NR: AT8032723

SOURCE CODE: UR/3404/65/016/000/0273/0277

AUTHOR: Mastenitsa, M. A.; Korolenko, G. A.; Nikulina, Ye. T.;  
Selezneva, A. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy  
nauchno-issledovatel'skiy institut vaktsin i syvorotok); Tomsk Medical  
Institute (Tomskiy meditsinskiy institut)

TITLE: The content of antibodies to influenza, tickborne encephalitis  
and whooping cough viruses in placental sera and gamma globulin

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok.  
Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii  
(Problems of epidemiology, microbiology and immunology), 273-277

TOPIC TAGS: gamma globulin, antibody, encephalitis, influenza

ABSTRACT: Study of the antiviral antibody level in placental serum and  
gamma-globulin showed that the level of influenza antibody depended on  
the epidemiological situation of the individual. For example, after an  
influenza epidemic caused by A<sub>1</sub>2 virus (1962) antibodies in titers from  
1:160 to 1:640 and higher were found in placental gamma-globulin. Gamma-  
globulin series with high or average antibody content can be recommended

Card 1/2

ACC NR: AT8032723

for treatment of human influenza patients, especially younger children.  
Antibody titers to *B. pertussis* did not 1:320, not sufficiently active  
for a specific preparation. The absence or low titer of antibodies to  
tickborne encephalitis apparently makes use of placental gamma-globulin  
for specific encephalitis therapy impossible. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 005

Card 2/2

ACC NR: AP8033277

SOURCE CODE: CZ/0093 8/012/005/0403/0413

AUTHOR: Mayer, V.; Rajcani, J.

ORG: Institute of Virology, Czechoslovak Academy of Sciences, Bratislava

TITLE: Studies of tickborne encephalitis virus virulence. Report nine. Intranasal infection of *Macaca mulatta* monkeys with genetically defined virus clones

SOURCE: Acta virologica, v. 12, no. 5, 1968, 403-413

TOPIC TAGS: monkey, experiment animal, tickborne encephalitis virus, medical experiment, virus virulence

ABSTRACT: Clinical, virological, histological, and immunofluorescence studies of intranasally infected *Macaca mulatta* monkeys revealed extreme differences in virulence of selected TBE virus clones. The possibility of virus invasion into the CNS of monkeys via olfactory pathways should be considered as a further marker toward definition of clones P-III E and Hy-HK28 "2" differing in their virulence in monkeys after intrathalamic inoculation. Table 2 shows some of the

Card 1/7

ACC NR: AP8033277

Table 1. Intranasal infection of *M. mulatta* monkeys with 10<sup>7</sup> to 10<sup>8</sup> i.u. of the P-III E clone of TBE virus

Monkey No.	Days after inoculation																	
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
9	A 38.9	A 39.4																
7	A 40.2	A 40.4	A 40.6	A 40.9	A 40.9													
1	A 38.3	A 38.9	A 39.0	A 38.8	A 38.8	A 38.4	B 38.6	C 38.4	D 38.4									
6	A 40.3	A 40.4	A 40.6	A 40.9	A 39.0	A 40.1	A 39.6	B 38.1	D 38.2	DM 38.4								
10	A 38.9	A 39.0	A 39.0	A 39.6	A 39.7	A 39.8	A 39.6		(A) 39.2	A 39.2	A 38.8	B 39.0	C 38.7	DM 38.2				
2	A 38.6	A 38.2	A 39.4	A 40.2	A 39.4	A 39.1	A 39.3	A 39.3	A 40.0	A 38.4	A 40.2	A 39.6	A 38.8	A 39.2	A 39.0	A 39.4		

\* Rectal temperature in °C (before inoculation, this temperature varied from 38.2—39.4°C).

A = no symptoms; (A) — indistinct signs of a very mild degree, like those in B, but the specificity of which was difficult to evaluate; B — slight ataxia and tremor, indistinct weakness, movements preserved; C — marked ataxia and weakness of extremities, but the animal makes efforts to use them in restricted movements; D — paralysis of extremities, the monkeys unable to move marked signs of encephalomyelitis; DM — as in D, but the monkey moribund.

Italics: data on day at which the animal was killed.

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ACC NR: AP8033277

results of virological examinations of monkeys infected intranasally with TBE virus. No virus-neutralizing antibodies were detected in any

Table 2. Viraemia in monkeys intranasally infected with the P-III E clone of TE virus

Monkey No.	Dilution of blood	Days after inoculation					
		2	3	4	5	6	7
9	undil.	0*	0	3	0		
	1:10	0	0	0	0		
	1:100	0	0	0	0		
7	undil.	0	3	0	3	0	0
	1:10	0	1	0	3	0	0
	1:100	0	0	0	0	0	0
1	undil.	0	3		0	0	0
	1:10	0	2	3	0	0	0
	1:100	0	0	0	0	0	0
6	undil.	3	3	0	0	3	
	1:10	3	0	0	0	1	0
	1:100	0	0	0	0	0	0
10	undil.	0	3	0	3	0	0
	1:10	0	3	0	2	0	0
	1:100	0	0	0	0	0	0
2	undil.	0*	0	0	0	0	0

\* Number of mice dead out of 3 mice inoculated.

\*\* Blood diluted 1:10 and 1:100 gave the same results.

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ACC NR: AP8033277

Table 3. Distribution of TE virus in the CNS of M. mulatta monkeys intranasally infected with the P-III E clone

Monkey No.	Killed on day p.i.	Persistence of clinical signs	Virus (log <sub>10</sub> mouse LD <sub>50</sub> per ml of 10% suspension)						
			Cortex	Thalamus	Striatum	Cerebellum	Spinal cord		
							Cerv.	Thor.	Lumbar
9	5	None	2.0	0*	0	0	0	0	0
7	9	None	0	0	0	0	0	0	0
1	12	3 days	7.0	7.5	7.0	N	7.5	6.5	6.0
6	13	3 days	6.8	6.7	6.5	7.6	6.7	5.0	5.1
10	17	3 days	6.0	7.5	6.0	7.5	6.8	6.0	6.0
2	26	None	0	0	0	0	0	0	0

\* 0 means no virus detected in undiluted 10% suspension from the given organ.

N = not done.

of the monkeys inoculated with Hy-HK28 "2" virus. Detailed histological examination of the cerebellum, the spinal cord, brain stem and other parts of the brain revealed that the most conspicuous changes were eosinophilic necrosis of neurons connected with numerous glial nodules in the olivary nuclei and in the substantia nigra. Eosinophilic necrosis of the neurons was accompanied by abundant microglial proliferation. Table 4 shows a quantitative evaluation of CNS changes in all

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Table 4. Quantitative evaluation of histological changes in the CNS of monkeys showing signs of clinical illness after intranasal infection with the virulent clone (P-III E) of TE virus

Part of CNS examined		Monkey No.		
		1	6	10
Lenticulostriate nuclei		2	1	2
Cerebral cortex		1	1	1
Thalamus		2	2	3
Substantia nigra		3	3	4
Cerebellum	Cortex	4	4	4
	Dentate nuclei	2	2	2
Brain stem	Reticular formation	2	3	3
	Olivary nuclei	3	4	4
	Vestibular nuclei	2	3	2
	Motoric nuclei	2	2	2
	Sensory nuclei	1	2	1
	Relay nuclei*	1	1	1
Spinal cord	Anterior horn	3	2	3
	Posterior horn	1	0	1

\* Olivary nuclei not included.

1 = Occasionally one cuff of glial nodule.

2 = Regularly 2-5 cuffs or glial nodules in the nucleus per section; neurons might be damaged (&lt;30%).

3 = More than 6 cuffs, numerous glial nodules or diffuse microglial mobilisation; neuronal damage or loss (30-90%).

4 = More than 90% of neurons necrotic or lost, overwhelming inflammatory reaction.

In cerebellum: 2 = 2-10 shreds in molecular layer; 3 = more than 11 shreds, neuronal damage up to 50%; 4 = neuronal damage more than 50%. (The scale was elaborated according to Nathanson *et al.*, 1966.)

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monkeys studied. In monkeys 11 through 19 inoculated with Hy-HK28 "2" clone, no inflammatory CNS changes were observed. A comparison of histological and immunohistological findings are presented in Table 5.

Table 5. Comparison of some findings in fatal encephalomyelitis in monkeys intranasally infected with the P-III E clone of TE virus

Part of CNS examined	Monkey No.								
	1 (13 days p. i.)			6 (13 days p. i.)			10 (17 days p. i.)		
	Virus <sup>1)</sup>	Hist. ol. <sup>2)</sup>	FA <sup>3)</sup>	Virus <sup>1)</sup>	Hist. ol. <sup>2)</sup>	FA <sup>3)</sup>	Virus <sup>1)</sup>	Hist. ol. <sup>2)</sup>	FA <sup>3)</sup>
Cerebellum Cortex		4	0	7.0*	4	0	7.5*	4	0
No. dentatus	N	2	++		2	++		2	++
Spinal cord, anterior horns of cervic. segments	7.5	3	++	6.7	2	++	6.8	2	++
Thalamus	7.5	2	++	5.7	2	+	7.5	3	++
C. lenticulostriatum	7.0	2	+	6.5	1	+	6.0	2	+
Brain cortex parietal lobe	6.5	1	+	5.8	4	+	6.0	1	+

<sup>1)</sup> log 10 mouse LD<sub>50</sub> per ml of 10% suspension; N = not done.<sup>2)</sup> Evaluation of lesions: see Table 4.<sup>3)</sup> Immuno fluorescence: 0 = no fluorescence; + = distinct and ++ = intensive specific fluorescence.

\* In virus titrations, the cerebellar excision included the cortex and arborical region.

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ACC NR: AP8033277

The extremely low viremia after intranasal inoculation can be explained by low permeability of the noninjured blood brain barrier for TBE virus. The species specificity is apparently not involved. Viremia, even at an extremely low level, occurred in all animals which later showed signs of initial or fully developed encephalitis, as determined histologically or by other methods. Orig. art. has: 5 tables and 11 figures.

[WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 05Mar68/ ORIG REF: 014

Cord 7/7

ACC NR: AP8036705

SOURCE CODE: UR/0219/68/066/011/0024/0027

AUTHOR: Mikhaylov, V. V.; Korolev, V. V.

ORG: Department of Pathological Physiology im. A. B. Bogomol'ets/Head--Prof. V. V. Mikhaylov), Saratov Medical Institute (Kafedra patologicheskoy fiziologii Saratovskogo meditsinskogo instituta)

TITLE: On the mechanism of disorders in electrical activity of neurons of the spinal cord in experimental botulism

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 66, no. 11, 1968, 24-27

TOPIC TAGS: botulism, neuron, spinal cord, bioelectric phenomenon, neurophysiology

ABSTRACT: The article reports the effect of *Clostridium botulinum* toxin on the functional state of different types of neurons in the spinal cord of cats. Type A toxin (1 mouse DLM=0.00001 mg of dry toxin) in a dose of 0.3-0.4 mg/kg of administered intramuscularly into a posterior extremity. Paralysis of the injected extremity developed within 72-96 hr. The electrical activity of the anterior roots and separate spinal cord neurons on the side of administration of the toxin and on the intact side was studied after 24, 48, 72 and 96 hr. Basic impulse activity of the

Cord 1/2

UDC: 616.981.555-07:616.832-091.81-073.9,

ACC NR: AP8036705

intermediate neurons was studied during the early stages (4—5 days) and late stages (14—16 days) of paralysis. Motor neurons were identified by antidromic and monosynaptic action potentials arising after stimulation of the gastrocnemius, posterior tibial, and peroneus nerves. There was decreased amplitude in the anterior root of monosynaptic volleys in about one-third of the motoneurons, and defects in synaptic mechanisms of generation of postsynaptic potentials in the preparalytic stage. A large number of motoneurons at this stage preserved the capacity to generate action potentials independent of the type of stimulation. Total paralysis developed when there was dissociation in monosynaptic and polysynaptic reflex charges associated with progressive damage to the  $\alpha$ -motoneurons of the anterior horns of the spinal cord. Since the intermediate spinal cord neurons play an important part in maintaining optimum excitation of the motor center of the cord, changes in basic and elicited electrical activity of intermediate neurons in the area of *C. botulinum* toxin-damaged spinal cord (7th lumbar to 1st sacral vertebra) were studied and compared with data from intact animals. No pathogenic effect of *C. botulinum* toxin on these intermediate neurons could be elicited. Orig. art. has: 2 figures and 1 table. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 04Jul68/ ORIG REF: 008/ OTH REF: 003

Cord 2/2

ACC NR: AP8032556

SOURCE CODE: UR/0248/68/000/010/0038/0043

AUTHOR: Mikhel'son, V. A.

ORG: First Moscow Medical Institute im. I. M. Sechenov (I Moskovskiy meditsinskiy institut)

TITLE: Hazards and complications associated with the use of muscle relaxants

SOURCE: AMN SSSR. Vestnik, no. 10, 1968, 38-43

TOPIC TAGS: muscle relaxant, pharmacologic sensitivity, drug effect

ABSTRACT: Results are reported of a questionnaire survey on complications arising in connection with the use of muscle relaxants in 92,427 patients in 139 medical institutions and in 5000 cases hospitalized over a 10-yr period. (See Tables 1 and 2). Analysis of the complications indicated that they are due to the side effects of the drugs and to their direct myoplegic effect, resulting in hypoventilation and hypoxia, excessively prolonged action, and regurgitation. Side effects can be kept to a minimum by administration of antidepolarizing relaxants before depolarizing agents, and administration of preparations with opposite effects on the body, e. g., fluothane and flaxedil. Muscle relaxants should be

Cord 1/4

UDC: 615.216.5.065



ACC NR: AP8032556

Table 1. Nature and incidence of complications in 97,427 patients

Complication	No. of complications
Urticaria	1
Heart arrest	30
Recurarization	47
Hypoxia	143
Vomiting and regurgitation	232
Increased blood pressure	259
Decreased blood pressure	259
Laryngo and bronchospasm	359
Prolonged apnea	699
Muscle pain	1733
Total	3792

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ACC NR: AP8032556

Table 2. Nature and incidence of complications in 5000 patients

Complication	No. of complications	
	Depolar-izing	Anti-Depolar-izing
Heart arrest	1	
Bronchospasm		1
Laryngospasm		1
Recurarization		3
Marked hypotension	2	2
Marked bradycardia	5	
Regurgitation	12	
Hypoxia	10	2
Prolonged action	16	5
Muscle pain	220	
Total		289

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ACC NR: AP8032556

administered only by qualified anesthetists, and in minimum dosages required to produce the desired effect on the body, in order to prevent complications arising as a result of their myoplegic effect.  
Orig. art. has: 5 tables. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 28Mar68/ ORIG REF: 003

Card 4/4

ACC NR: AP8032169

SOURCE CODE: UR/0411/62/004/005/0517/0523

AUTHOR: Mikhlin, E. D.; Prokof'yeva, V. G.; Mishina, T. I.

ORG: Institute of Biochemistry im. A. N. Bakh (Institut biokhimi)

TITLE: Effect of extracts of the biomass of thermophilic methane bacteria on the growth of microorganisms

SOURCE: Prikladnaya biokhimiya i mikrobiologiya, v. 4, no. 5, 1968, 517-523

TOPIC TAGS: bacteria growth, thermophilic bacteria, fuel microorganism, bacteria extract, growth stimulant

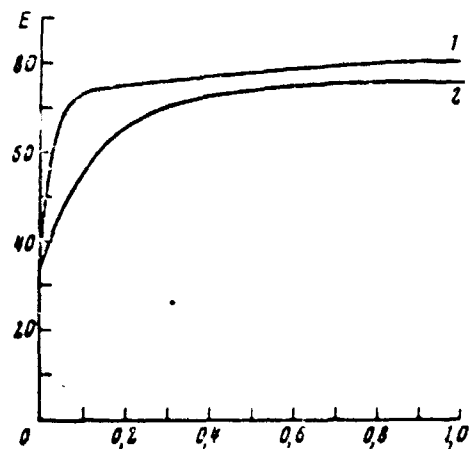
ABSTRACT: The effect of biomass of *Candida utilis*, *C. tropicalis*, *Torula torulopsis*, *Lactobacillus casei* and *Streptococcus lactis* on microbial growth was determined. Acid and alkaline aqueous extracts were prepared from the biomass formed during the thermophilic methane fermentation of acetone butyl distiller solutions. These preparations were extracted in weak acid or alkali for 60 min at 90—95°C. In

Card 1/7

UDC: 576.809.518

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ACC NR: AP8032169



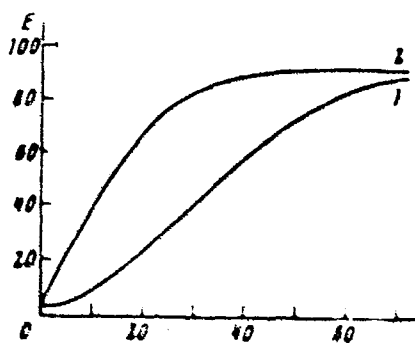
ml acid extract/10 ml medium

Fig. 1. Effect of acid and alkaline extract concentration on growth rate of *C. utilis* on Rider's medium: 24-hr culture

1 - Acid extract; 2 - alkaline extract

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ACC NR: AP8032169



Culture time in hr

Fig. 2. Growth dynamics of *C. utilis* with time:

1 - Control (Rider's medium without additions); 2 - acid extract (0.2 ml/10 ml medium)

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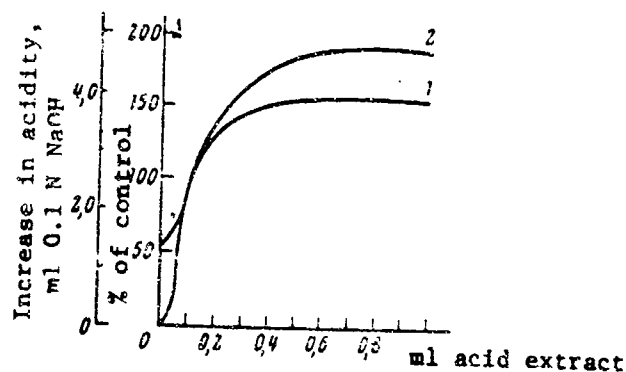


Fig. 3. Growth of *L. casei* on a milk medium with the addition of varying quantities of acid extract;

- 1 - Increase in acidity (ml 0.1 N NaOH/10 ml medium);
- 2 - increase in acidity, % of control without additions

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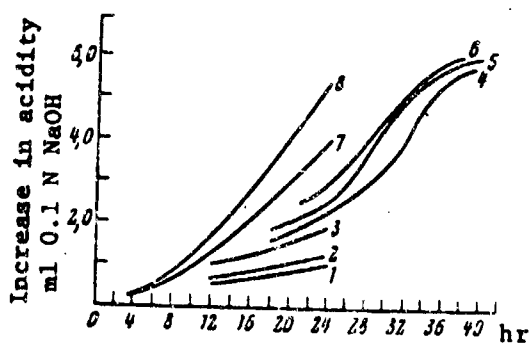


Fig. 4. Growth dynamics of *L. casei* on milk medium with acid extract

Experiment 1: 1 - control (no additions); 2 - with acid extract; 3 - with acid extract after charcoal filtration

Experiment 2: 4 - control (no addition); 5 - + acid extract; 6 - + acid extract after charcoal filtration

Experiment 3: 7 - control (without addition); 8 - + acid extract

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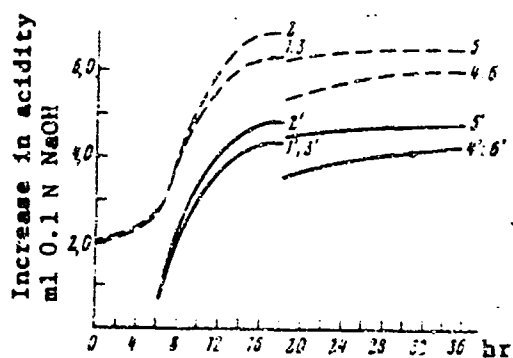


Fig. 5. Growth of *Str. lactis* on milk medium with acid extract added

1 - general acidity; 2 - increase in acidity.

Experiment 1: 1,1' - control; 2,2' - + acid extract; 3,3' - + acid extract after charcoal filtration

Experiment 2: 4,4' - control; 5,5' - + acid extract; 6,6' - + acid extract after charcoal filtration

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ACC NR: AP8032169

order to increase yeast growth rate on Rider's medium and that of lactic acid bacteria on fat free milk medium, 20 mg % of dry matter were added to the extracts. Orig. art. has: 5 figures and 3 tables.

[WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 25May67/ ORIG REF: 003/ OTH REF: 008

Card 7/7

ACC NR: AP8032039

SOURCE CODE: UR/0473/68/004/009/0096/0099

AUTHOR: Mindlin, S. Z.; Churkina, L. G.

ORG: Institute of Atomic Energy im. I. V. Kurchatova, Moscow (Institut atomnoy energii)

TITLE: The comparative mutagenic activity of N-nitrosoalkylureas and N-methyl-N'-nitro-N-nitrosoguanidine with respect to *E. coli* K-12

SOURCE: Genetika, v. 4, no. 9, 1968, 96-99

TOPIC TAGS: mutagen, escherichia coli

ABSTRACT: Comparative study of the mutagenic activity of N-nitroso-methylurea (NMU), N-nitrosoethylurea (NEU) and N-methyl-N'-nitro-N-nitrosoguanidine (NMG) with respect to *E. coli* showed that the most effective mutagen was NMG. A strain of *E. coli* K-12 (strain P678) deficient in B<sub>1</sub>, leucine, and threonine was treated with a 0.025% solution of NMG, 0.5% NEU, or 1.0% NEU for 30-180 min. Mutagenic activity was judged by the frequency of auxotrophic mutants. NMG was also more effective than NEU in inducing temperature-sensitive mutations in *E. coli*. Orig. art. has: 3 tables. [WA-50; CBE No. 38][JS]

Card: 1/1

UDC: 575.24

ACC NR: AT8031983

SOURCE CODE: UR/0000/67/000/000/0023/0025

AUTHOR: Mironchuk, Yu. V.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Serological methods of study of the role of birds in foci of some endemic rickettsioses

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 23-25

TOPIC TAGS: epidemiologic focus, rickettsial disease

ABSTRACT: Study of the pooled serum of 30 lesser redpolls, four sparrows and some pigeons infected with a local strain of *D. sibiricus* in the complement fixation reaction 30 days after infection produced only 4 positive results. Positive results were reported on the 15th and 17th days with redpoll serum and on the 15th and 19th days with pigeon serum (in titers from 1:10 to 1:20). The complement-fixation inhibition reaction with sera from 44 birds (redpolls, crossbills, sparrows, and

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ACC NR: AT8031983

pigeons) showed the presence of inhibitor antibodies in the blood of one redpoll (4th day), one crossbill (5th day), one sparrow (12th day), and nine pigeons (5th—30th days) in titers from 1:5 to 1:160. The complement fixation reaction with sera of 243 rock-doves, hoopoes, redpolls, bullfinches, house sparrows, tree sparrows, and great tits trapped in the Angara River area in a natural focus of Asian tickborne rickettsiosis gave negative results. Blocking antibodies were detected, however, in the complement-fixation inhibition reaction in sera of some pigeons, redpolls, bullfinches, tree sparrows, house sparrows, and tits. In addition, some hoopoes, tree sparrows and house sparrows gave positive reactions with *R. burneti* in an Angara focus of Q-fever (complement-fixation inhibition reaction only). Blocking antibodies are apparently present in the serum of birds more frequently than complement-fixing antibodies, and thus the complement-fixation inhibition reaction is preferred for serological study of birds in foci of endemic rickettsioses. Experimental data indicate the participation of birds in natural foci of Asian tickborne rickettsiosis and Q-fever in this area.

[WA-50; CBF No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8031981

SOURCE CODE: UR/0000/67/000/000/0013/0018

AUTHOR: Mironchuk, Yu. V.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Aspects of the nosogeography of Asian tickborne rickettsiosis

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 13-18

TOPIC TAGS: rickettsial disease, tick, epidemiologic focus

ABSTRACT: A natural focus of Asian tickborne rickettsiosis undoubtedly exists in Irkutsk oblast because climatic conditions are favorable, the topography is steppe or forest-steppe, large numbers of sheep and cows are present to feed adult *Dermacentor* ticks, and long-tailed Siberian susliks (as well as striped hamsters and narrow-skulled voles) to feed larvae and nymphs are abundant. Antibodies to the agent of tickborne rickettsiosis were only found in the blood of 1.1--2.8% of human sera tested, presumably because of the rapid disappearance of complement-fixing antibodies from the blood and the comparatively rare

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ACC NR: AT8031981

contact of people with ticks. Of 1351 sera of farm animals tested in the complement fixation test with *D. sibiricus* antigen, 26 gave positive reactions, as compared with 40.6% of suslik sera. Rickettsial strains were isolated from 41% of Ixodid ticks and 25% of small rodents. Tick-borne rickettsiosis in Irkutsk oblast is primarily confined to agricultural regions, which are usually narrow, densely populated zones around the railroad lines. Orig. art. has: 1 table. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8024917

SOURCE CODE: UR/0016/68/000/005/0137/0137

AUTHOR: Mironchuk, Yu. V.; Litvinenko, R. P.

ORG: Irkutsk Institute of Epidemiology and Microbiology (Irkutskiy institut epidemiologii i mikrobiologii)

TITLE: The complement-fixation inhibition reaction during Asian tick-borne rickettsiosis

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 5, 1968, 137

TOPIC TAGS: complement fixation reaction, rickettsial disease serologic test, blocking antibody

ABSTRACT: The complement-fixation inhibition reaction should be added to the complement-fixation reaction for study of the sera of birds for tickborne rickettsiosis, since the inhibition reaction is a specific and sensitive method of detecting incomplete antibodies. The best results were obtained when inhibitor serum was added in the first phase (test serum plus antigen plus complement - 25 min in incubator) and the indicator serum in the second phase. Indicator sera were obtained by immunizing pigeons, lesser redpolls, sparrows, and crossbills with

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ACC NR: AP8024917

D. sibiricus 126-C, isolated from long-tailed Siberian susliks. The complement-fixation inhibition reaction gave 43 positive reactions out of 97 bird sera, as compared with four positive reactions in the complement-fixation reaction. Titers of incomplete antibodies ranged from 1:5 to 1:160, with the highest titers reached by the end of the second month after infection. Of the 531 sera from 831 birds studied in 1966—1967, blocking antibodies were found in 42 sera by the inhibition reaction, as compared with four sera by the standard complement-fixation reaction. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8032539

SOURCE CODE: UR/3407/68/029/000/0064/0066

AUTHOR: Mitropol'skiy, O. V.

ORG: Institute of Zoology, Academy of Sciences KazSSR (Institut zoologii Akademii nauk KazSSR)

TITLE: On the biology of the desert wheatear *Oenanthe deserti* (Temminck)

SOURCE: AN Kazakh SSR. Institut zoologii. Trudy, v. 29, 1968. Novosti ornitologii Kazakhstana (Ornithological news of Kazakhstan), 64-66

TOPIC TAGS: biologic ecology, animal colony

ABSTRACT: A study of the desert wheatear *Oenanthe deserti* (Temminck) on the Mangyshlak Peninsula revealed that they do not exist in large numbers, that they nest sporadically, and appear on the peninsula from 1 to 6 April, when snowstorms still occur frequently in the area. The male migrates to the area before the female. Nesting areas are varied. Of five nests found in the area, one was built in an iron pipe, one on a 2-m-high bluff, one in a spot dug out by a tortoise, one in dried marsh grass near the shore, and one at the foot of a 30-cm-deep chink. It is believed that the wheatear also nests in the burrows of rodents. The

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UDC: 598.8

ACC NR: AT8032539

first eggs in the nests appear at the end of April. They are especially hostile to *Oenanthe pleschanka*. Orig. art. has: 1 table.  
[WA-50; CBE No. 38][XF]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002

Card 2/2

ACC NR: AP8033593

SOURCE CODE: UR/0016/68/000/009/0057/0060

AUTHOR: Morozova, M. Yu.

ORG: Institute of Epidemiology and Microbiology im. Gamaleya AMN SSSR, Moscow (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Rickettsial antigens and rickettsial vaccines. Report II. Cultivation of *D. sibiricus* and preparation of diagnostic preparations

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 57-60

TOPIC TAGS: rickettsial disease, chick embryo, serologic test, complement fixation reaction

ABSTRACT: During mass cultivation of *D. sibiricus* on 5-day chick embryos according to Cox's method, 20.6% of embryos contained a sufficient number of rickettsia. Of the total number of infected chick embryos, 77.9% could be used for production of diagnostic preparations. The yield of so-called "whole antigen" for the complement fixation reaction was 12 ml per yolk sac. This antigen remained stable for at least 10 yr. The yield of antigen for the indirect hemagglutination reaction (which can be

Card 1/2

UDC: 576.851.71.093.3:616.  
.981.711-022.935.4-078

ACC NR: AP033593

conducted with fresh or formalinized erythrocytes) was 8 ml per yolk sac. Lyophilized cultures of *D. sibiricus* in a 1:20 dilution or yolk sacs with abundant rickettsia in a 1:50 dilution were used for infection. Maximum death of embryos occurred on the fourth to fifth day after infection (63.6%). Orig. art. has: 3 tables. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 30Jun67/ ORIG REF: 003/ OTH REF: 004

Cord 2/2

ACC NR: AP8033606

SOURCE CODE: UR/0016/68/000/009/0146/0147

AUTHOR: Morozova, O. S.; Savina, A. A.

ORG: Railway Sanitary-Epidemiological Station, Southern Railway  
(Dorozhnaya sanitarno-epidemiologicheskaya stantsiya Yuzhnoy  
zheleznoy dorogi)

TITLE: Use of paste with "ratindan" for control of rodents in areas  
of a southern railway station

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9,  
1968, 146-147

TOPIC TAGS: rodent, railroad, pest control

ABSTRACT: The use of rodenticide pastes, prepared with 70 parts of a fatty base, 10 parts of "ratindan" and 10 parts of sugar, and placed on small pieces of bread as bait, was successful in eliminating rats and mice within 4-10 days from 38 to 42 areas of the Osnova and Khar'kov railway stations. Pastes prepared with "ratindan" do not lose their effectiveness over a period of several months, and are economical to prepare. Orig. art. has: 2 tables. [WA-50; CBE No. 38][XF]

SUB CODE: 06/ SUBM DATE: 25Mar67/ ORIG REF: 003

Cord 1/1

ACC NR: AP8033611

SOURCE CODE: UR/0016/68/000/009/0156/0156

AUTHOR: Murav'yeva, L. I.

ORG: Biophysics Institute, AMN SSSR (Institut biofiziki AMN SSSR)

TITLE: The effectiveness of enteral vaccination during oral infection

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 156

TOPIC TAGS: vaccination, salmonella, immunogenesis

ABSTRACT: Enteral vaccination with *S. breslau*, conducted in two cycles of three days each, produced immunity to enteral infection with a live virulent culture of *S. typhimurium*. The level of immunity depended on the method of preparation of the vaccine, and the time interval between immunization and infection. The effectiveness of enteral vaccination is usually judged with parenteral infection. Mice were immunized with heat-killed *S. breslau* strain 3397. Antigen was given in 10 billion cell doses, for a total dose of 60 billion cells. Animals were infected with

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UDC: 615.371.032.34.036.8

ACC NR: AP8033611

*S. typhimurium* on the seventh day after immunization. The most effective enteral vaccine consisted of bacterial suspension prepared on bactericidal fluid extracted from fish fat. Enteral administration of this vaccine increased the viability of mice threefold as compared with controls.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 06Dec67

Card 2/2

ACC NR: AT8032728

SOURCE CODE: UR/3404/65/016/000/0300/0304

AUTHOR: Murina, L. M.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: The reactivity of a 2.5% brain vaccine against tickborne encephalitis and means of decreasing reactivity

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 300-304

TOPIC TAGS: encephalitis, encephalitis vaccine, vaccination reaction

ABSTRACT: Reactions to vaccination against tickborne encephalitis of people 15—20 yr old, inoculated in 1960 with a formalinized 2.5% brain vaccine, consisted of loss of consciousness, drop in cardiac activity, seizures, involuntary urination, etc. Reactions set in soon after vaccination, and usually persisted 5—10 min. A total of 3—9% of vaccinated individuals were affected. Injection of a 2% novocaine solution (0.5 ml) with the vaccine decreased postvaccinal reactions to 0.6% and eliminated reactions during subsequent injections of

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ACC NR: AT8032728

vaccine. Vaccine was given in 1.0 ml doses for subcutaneous injection up to age 16, and in 2.0 ml doses for older patients (or 0.2 ml intracutaneously). Injection of Dimedrol with vaccine did not affect the appearance of hyperemia at the site of injection, but decreased the number and dimensions of infiltrates. Generalized reactions were 13 times more frequent with subcutaneous than with intracutaneous inoculation. Orig. art. has: 3 tables. [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8032719

SOURCE CODE: UR/3404/65/016/000/0255/0260

AUTHOR: Murina, L. M.; Stetkevich, A. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Allergic reactions in people vaccinated against tickborne encephalitis

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 255-260

TOPIC TAGS: encephalitis, encephalitis vaccine

ABSTRACT: Study of 982 healthy people and people vaccinated against tickborne encephalitis using the cutaneous test with tickborne encephalitis allergen showed that this test can be used to detect specific shifts in reactivity among inoculated people. Since the development of allergy in vaccinated individuals was correlated with results of the neutralization reaction, the presence of a direct connection between allergic shifts under the influence of tickborne encephalitis antigen and the level of immunity can be postulated. Change in the intensity of allergization

Cord 1/2

ACC NR: AT8032719

(sensitization) among inoculated individuals during and after vaccination can serve as an index of the protective capabilities of the organism, and consequently is a practical test for selection of people for revaccination and study of specific immunity. The highest degree of sensitization was achieved with subcutaneous vaccination and the lowest with intracutaneous vaccination. The number of positive reactions decreased with increase of the interval between vaccination and the intracutaneous allergic test, from 60% positive within 2 months of the first vaccination to 4% within 12 months. The length of the interval between the first and second inoculations is important in establishing the increase in allergic reactivity: the number of negative reactions decreased to 32.5% if the interval between the first two inoculations was three weeks. Orig. art. has: 4 tables. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 002

Cord 2/2

ACC NR: AT8032718

SOURCE CODE: UR/3404/65/016/000/0247/0254

AUTHOR: Nesterov, V. S.; Stetkevich, A. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok); Tomsk Medical Institute (Tomskiy meditsinskiy institut)

TITLE: The relationship between immunological indices (serological indices) and the allergic reaction in tickborne encephalitis patients

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 247-254

TOPIC TAGS: encephalitis, serologic test, complement fixation reaction

ABSTRACT: A considerable increase in virus-neutralizing antibodies was observed in the blood of 378 patients with tickborne encephalitis from the beginning of the disease until the 1st-4th weeks. The level of specific complement-fixing and hemagglutination-inhibiting antibodies, however, changed little during the entire period of the disease. The greatest degree of correlation among different serological tests in disease dynamics was observed between the percentage of positive results in the neutralization test and the number of positive results in the

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ACC NR: AT8032718

cutaneous allergic test. During encephalitis, sensitization of the organism increases steadily (from 61 to 96%), while serological tests of the same people show the following: the neutralization reaction (NR) is positive in an ever increasing number of cases, and is considerably faster than the cutaneous allergic test up to the first month (after which both reactions are parallel); the complement fixation reaction (CFR) gives slightly varying results during the entire disease period, with a decrease in the number of positive results around the first month (when there are considerably more positive reactions in the cutaneous allergic test); the passive hemagglutination reaction (PHR) gives approximately the same number of positive results as the CFR. In the ill-defined form of encephalitis, the number of positive results in the CFR and the PHR is approximately the same for all periods of the disease. In the meningeal form of encephalitis the number of positive reactions in the CFR and PHR increased by the second week, and with the focal form of encephalitis the number of positive results dropped by the second week. Results of the NR increased gradually from the beginning to the end of the first month during ill-defined encephalitis, and increased up to the second week during meningeal encephalitis. During focal encephalitis virus-neutralizing antibodies were hardly present before the first two weeks, but sharply increased by the end of the first month. Thus, the greatest degree of correlation between the cutaneous allergic test and the NR is

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ACC NR: AT8032718

observed during the ill-defined and meningeal forms of encephalitis in the disease period from 1 to 2 months. In the ill-defined cases of encephalitis, antibodies from a previous infection or immunization were probably involved. Orig. art. has: 3 figures and 1 table.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 013

Card 3/3

ACC NR: AP8034768

SOURCE CODE: UR/0346/68/000/010/0069/0070

AUTHOR: Netrebko, I. D.; Kas'yanova, L. P.; Yova, N. A.; Peregovaya, L. A.; Filippovich, N. M.; Omel'chenko, M. P.; Fedorchenko, F. V.; Meyzler, M. S.; Glushko, V. G.

ORG: none

TITLE: Clinical symptoms of toxoplasmosis among dogs

SOURCE: Veterinariya, no. 10, 1968, 69-70

TOPIC TAGS: toxoplasmosis, antibody, complement fixation reaction

ABSTRACT: Study of 19 dogs with acute toxoplasmosis (variously diagnosed as plague, gastritis, stomatitis, poisoning, or rabies) showed that characteristic symptoms include progressive exhaustion, weakness, loss of appetite, vomiting, conjunctivitis, diarrhea, salivation (and occasionally stomatitis), nervous system damage, enlargement of lymph nodes, and increase in antibody titers in the complement-fixation reaction with *Toxoplasma* antigen from 1:5 to 1:40. Nervous-system injuries included paresis of lower jaw in one animal, and paresis of a rear paw in two animals. In addition, one dog had impaired vision and another became blind. Study of 13 dogs with chronic toxoplasmosis (incorrectly

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UDC: 619:616.993.192.07:636.7



ACC NR: AP8034768

diagnosed as plague, dermatitis, eczema, and gastritis) showed characteristic symptoms of brief gastro-intestinal upset, and injuries to the skin and nervous system on a background of positive complement-fixation tests and a generally good state of health. Animals with clinical symptoms of toxoplasmosis were treated with Chloridin in combination with sulfanilamides. [WA-59; CBE No. 58][US]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8032171

SOURCE CODE: UR/0411/68/004/005/0562/0569

AUTHOR: Nikolayev, P. I.; Sokolov, D. P.

ORG: Moscow Institute of Chemical Machine Building (Moskovskiy Institut khimicheskogo mashinostroyeniya)

TITLE: Determining coefficients of equations describing processes of microorganism cultivation

SOURCE: Prikladnaya biokhimiya i mikrobiologiya, v. 4, no. 5, 1968, 562-569

TOPIC TAGS: continuous culture method, tissue culture, mathematics, nutrient medium

ABSTRACT: This paper describes equations characterizing processes occurring during the cultivation of organisms and relates the initial amount of substrate treated or consumed to the degree of microbial growth and biosynthesis. This is essentially a graphoanalytical method for evaluating coefficients used in the equations. Change in quantity and cells ( $\alpha$  and  $\alpha_r$ ) are interchangeable and proportional. The relationship between the first (initial substrate consumption) and the second (accumulation of biosynthetic products) processes are shown as

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UDC: 663.4+576.809.56

differential equations:

$$\frac{d(S_0 - S)}{d\tau} = \alpha \frac{dX}{d\tau} + \gamma X, \quad (1)$$

$$\frac{dP}{d\tau} = \alpha_p \frac{dX}{d\tau} + \gamma_p X. \quad (2)$$

where  $S_0$  is the initial substrate concentration at  $X = 0$  g/l;  $S$  is the substrate concentration in g/l;  $X$  is cell concentration in g/l;  $P$  is the concentration of synthesis product in suspension in g/l;  $\alpha$  is the substrate utilization coefficient, which is the total quantity of substrate utilized during the formation of synthesis products;  $\gamma$  is the substrate conversion coefficient, which indicates the amount of substrate utilized by a unit of biomass in a unit time;  $g$  is utilized substrate/g biomass hr;  $\alpha_p$  is the coefficient of product yield—the quantity of product produced per unit of biomass—i.e., product grams/biomass grams;  $\gamma_p$  is the product formation coefficient, the quantity of product produced by a unit of biomass in a unit time as a result of group 2 processes, i.e., product grams/biomass grams/hr; and  $\tau$  equals the time in hours. In equations 1 and 2,  $\alpha$ —substrate loss coefficient,  $\gamma$ —the altered substrate,  $\alpha_p$ —product yield, and  $\gamma_p$ —product formation; all depend on the speed and direction of group 1 and group 2 processes;

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1) if the results of group 1 and 2 processes lead to the formation of a product, then  $\alpha_p$  is greater than 0 and  $\gamma_p$  is greater than 0; 2) if, as a result of group 2 processes, a product is formed but as a result of group 1 processes is transformed into another product, then  $\alpha_p$  is less than 0 and  $\gamma_p$  is greater than 0; 3) if, as a result of group 1 processes, a product is formed and this is transformed by group 2 processes, then  $\alpha_p$  is greater than 0, but  $\gamma_p$  is less than 0. Substrate changes are described in equations 3—7:

$$\mu_p = \frac{dP/d\tau}{P}, \quad (3)$$

$$\mu_x = \frac{dX/d\tau}{X}, \quad (4)$$

$$\mu_s = \frac{d(S_0 - S)/d\tau}{S_0 - S} \quad (5)$$

$$\frac{S_0 - S}{X} \mu_s = \alpha \mu_x + \gamma, \quad (6)$$

$$\frac{P}{X} \mu_p = \alpha_p \mu_x + \gamma_p, \quad (7)$$

where  $\mu_p$  is the rate of change of product concentration,  $\mu_x$  is the cell

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ACC NR: AP8032171

volume, and  $\mu_g$  is the resultant rate of change of the altered substance, where the dependence of equations 3, 4 and 5 upon equations 1 and 2 can be shown by expressions 6 and 7 where  $\mu_g$  is the specific rate of change of a quantity of substrate utilized/unit volume/hr;  $\mu_x$  is the specific growth rate of cells/hr; and  $\mu_r$  is the specific rate of product concentration change/hr. Solutions of equation 6 can be plotted on a graph. Under ideal conditions, these are straight line graphs and relationships obtained in equations 6 and 7 can be used to determine  $\alpha$ ,  $\gamma$ ,  $\alpha_r$ , and  $\gamma_r$  by a graphic method. The quantities  $\mu_r$ ,  $\mu_x$ , and  $\mu_g$  can be calculated from data obtained in batch cultures of microorganisms from one apparatus (fermentor) or from any number of fermentors up to "n" linked reaction vessels. One can show that the n-th vessel of a battery can be described:

$$\mu_{pn} = D_n \frac{P_n - P_{nvx}}{P_n} \quad (8)$$

$$\mu_{xn} = D_n \frac{X_n - X_{nvx}}{X_n} \quad (9)$$

$$\mu_{sn} = D_n \frac{S_{nvx} - S_n}{S_{sn} - S_n} \quad (10)$$

where  $B$  is the dilution coefficient/hr;  $n$  is the number of vessels in

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ACC NR: AP8032171

the battery; and  $vx$  is the characteristic of product yield. In the first reaction vessel, expressions 8, 9, and 10 lead to expression 11.

$$\mu_p = D; \mu_x = D; \mu_s = D. \quad (11)$$

Equation 6 can be used to determine the economy coefficient for one reaction vessel and therefore:

$$Y = \frac{\mu_p}{\alpha\mu_x + \gamma} \quad (12)$$

$$Y_n = \frac{\mu_{sn}}{\alpha\mu_{xn} + \gamma} \quad (13)$$

can be used to determine the economy coefficient in a multiple system where  $Y$  is the economy coefficient (g biomass/g altered substrate); and  $Y_n$  is the sum economy coefficient when  $n$  is the number of reaction vessels in the battery (g biomass/g treated substrate). For the n-th vessel one obtains:

$$\frac{P_n}{S_{sn} - S_n} = \frac{\alpha\mu_{sn} + \gamma_p}{\alpha\mu_{xn} + \gamma} \frac{\mu_{sn}}{\mu_{pn}} \quad (14)$$

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ACC NR: AP8032171

Relationships 6 and 7 can be used with data obtained from periodic sampling during culturing to obtain 15 and 16 by integration. In

$$\frac{S(0) - S(\tau)}{\int_0^\tau X(\tau) d\tau} = \alpha \frac{X(\tau) - X(0)}{\int_0^\tau X(\tau) d\tau} + \gamma, \quad (15)$$

$$\frac{P(\tau) - P(0)}{\int_0^\tau X(\tau) d\tau} = \alpha_p \frac{X(\tau) - X(0)}{\int_0^\tau X(\tau) d\tau} + \gamma_p, \quad (16)$$

15 and 16, the quantities  $S(0)$ ,  $S(\tau)$ ,  $X(0)$ ,  $X(\tau)$ ,  $r(0)$ , and  $r(\tau)$  depended on substrate concentration  $S$ , cell number  $X$ , total product  $P$ , at times 0 and  $\tau$ , on the height of the growth curve  $x$  during the interval  $0-\tau$ :  $\alpha$  and  $\gamma$  can be plotted on a graph. Mathematical analysis was made of events occurring during experimental cultivation using *Candida lipolytica* or *Candida tropicalis*, with strain 303 as the test organism. Sample problems, graphic solutions, and the supporting calculations are illustrated in solved problems and graphs showing the comparison of experimental with theoretical results. Also characteristics of the

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ACC NR: AP8032171

machinery used were considered. Orig. art. has: 30 equations and 6 figures. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 03Mar67/ ORIG REF: 003/ OTH REF: 003

Card 7/7

ACC NR: AP8035720

SOURCE CODE: UR/0479/68/000/007/0028/0031

AUTHOR: Novgorodskaya, A. M.; Rozengart, V. I.; Shcherbak, I. G.

ORG: Department of Biochemistry, First Leningrad Medical Institute im. I. P. Pavlov (Kafedra biokhimi i Leningradskogo meditsinskogo instituta)

TITLE: Distribution in the body of the cation organic phosphorus cholinesterase inhibitor

SOURCE: Zdravookhraneniye Turkmenistana, no. 7, 1968, 28-31

TOPIC TAGS: organic phosphorus compound, anticholinesterase, insecticide

ABSTRACT: The distribution of FOSGA-81 (GA-81) was studied in the tissues and organs of white rats following intramuscular or intraperitoneal administration (0.015 mg/kg). Two hours after injection, the animals were sacrificed and residual activity of GA-81 in tissue homogenates and whole blood was determined by the electrometric method and expressed in percentages of the relative cholinesterase activity in tissues from control rats. GA-81 in the tissues was evaluated by curves expressing the relation of residual cholinesterase activity in the tissues to the concentration of the inhibitor. Curves were calibrated

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ACC NR: AP8035720

from results of a special group of experiments in which the degree of cholinesterase inhibition was determined in each of the tissues studied after a 2-hr incubation of tissue homogenates with different known concentrations of GA-81. The lowest concentrations were found in skeletal muscle, kidney, small intestinal wall, and lung tissues. Cholinesterase in these tissues showed the greatest sensitivity to GA-81.

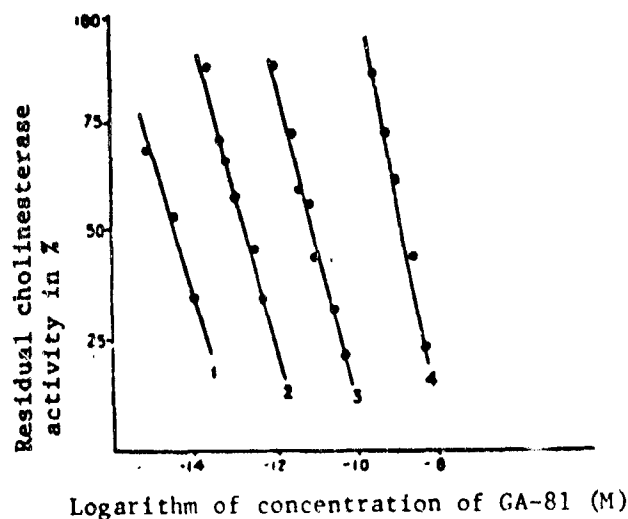
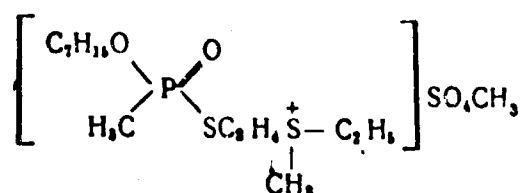


Fig. 1. Sensitivity of cholinesterase in the tissue of muscle (1), lung (2), brain (3), and liver (4) to GA-81

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ACC NR: AP8035720

Brain, heart, and stomach cholinesterase were less sensitive. The highest GA-81 concentration was found in liver tissue. Liver cholinesterase was least sensitive to GA-81 (see Figure 1). Thus, the effectiveness of GA-81 varied greatly in relation to cholinesterase sensitivity in the different tissues. Only a small part of the GA-81 administered showed anticholinesterase activity. This may be explained by partial disintegration in the body, or by permanent binding to proteins, which do not have cholinesterase activity. GA-81, as synthesized by N. N. Godovikov and A. A. Abduvakhabov in M. I. Kabachnik's laboratory in the Institute of Elemental Organic Compounds AN SSSR, has the following structure:



Orig. art. has: 1 table, 1 figure, and 1 formula.

[WA-50; CBE No. 38][XF]

SUB CODE: 06/ SUBM DATE: none

Card 3/3

ACC NR: AP8033937

SOURCE CODE: UR/0402/68/000/005/0566/0574

AUTHOR: Novokhatskiy, A. S.; Mishin, L. N.

ORG: Institute of Virology im. D. I. Ivanovskiy AMN SSSR, Moscow  
(Institut virusologii AMN SSSR)

TITLE: Replication of VEE virus in chick embryo fibroblasts

SOURCE: Voprosy virusologii, no. 5, 1968, 566-574

TOPIC TAGS: VEE, equine encephalomyelitis, virus DNA, virus reproduction, virus viability, tissue culture method

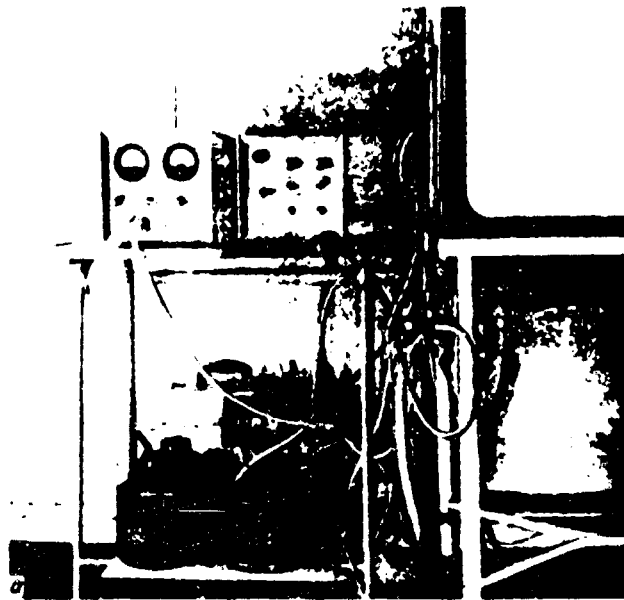
ABSTRACT: Reproduction of VEE virus was studied in a suspension of primary trypsinized cells (CEF) using original deep cell cultivation equipment. The chick embryo cells were obtained and trypsinized from 10-11-day chick embryos by standard methods and then suspended in the following medium: 0.5% lactalbumin hydrolysate (45%), medium number 199 (45%), heated bovine serum (5-10%), and penicillin and streptomycin (100 units/ml). The VEE virus was passaged in CEF cells before use. The cultures were infected by introducing viruses suspended in Hank's solution. These cells were kept at 37°C during treatment. Figure 1 shows the setup for batch cultivation of this virus and details

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UDC: 576.853.25.095.6.093.35

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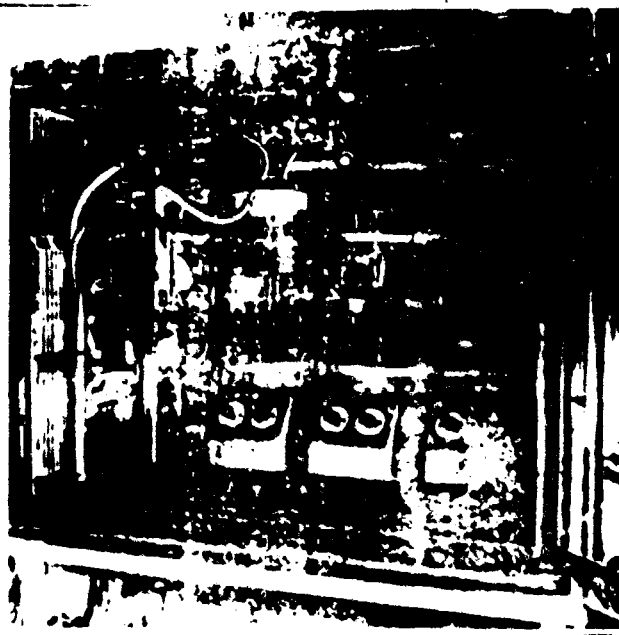
ACC NR: AP8033937



NOT REPRODUCIBLE

Card 2/9

ACC NR: AP8033937



NOT REPRODUCIBLE

Fig. 1. General view of a setup for deep cell cultivation.

a - Automation and control block; b - interior view of thermostat

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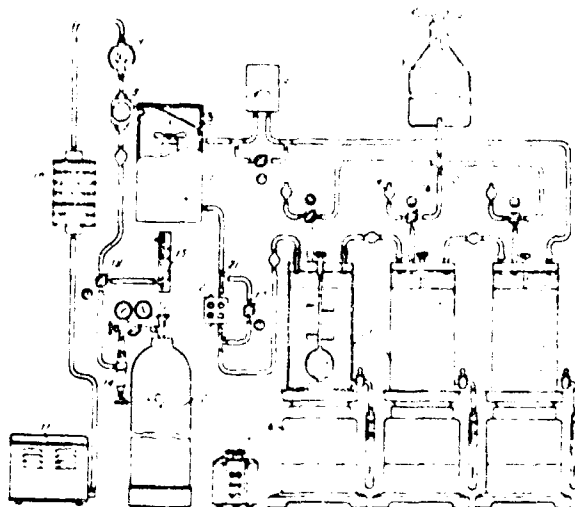


Fig. 2. Principle schematic of a deep cell cultivation system

This is designed for batch cultures. 1 - Culture vessels, molybdenum-glass cylinders. [Abstracter's note: Other numbered parts of this apparatus are not identified; they are described in a previous article.]

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of this setup are shown in Figure 2. The apparatus is mostly glass linked with fluoroelastic stop clocks to ensure no contamination either inward or outward. Fresh, sterile, nutrient medium is introduced into the tanks via tubing from flask 5. The air feed was connected so that sterile air plus varying concentrations of  $\text{CO}_2$  could be added and the flow could be regulated from 0.1-2 l/min. Automatic control systems regulated the  $\text{CO}_2$  concentration between 1-10%. Each culture batch consisted of 500-700 ml and were mixed by a stirrer system in the bottom of each tank or agitated by a spinner system. Living and dead cells were determined throughout the cultivation process. Figures 3, 4, 5, and 6, as well as Tables 1 and 2 show some of the results of



Fig. 3. Dynamics of the change of population of chick embryo fibroblast cells in a medium infected and uninfected with VEE virus.

Uninfected culture: 1 - total cells; 2 - live; infected culture; 3 - total cells; 4 - live

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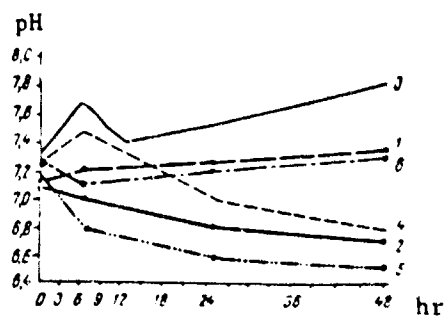


Fig. 4. Dynamics of pH changes under different aeration conditions.

Uninfected cultures: 1 - air aeration; 2 - air + 1.5% CO<sub>2</sub>; infected culture; 3 - air aeration; 4 - air + 1.5% CO<sub>2</sub>; 5 - no aerations; 6 - changing aeration systems

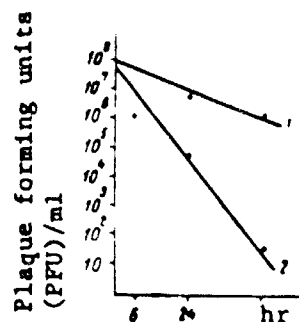


Fig. 5. Inactivation dynamics of VEE virus in a batch culture (1) and in an agitated (mixed) culture (2)

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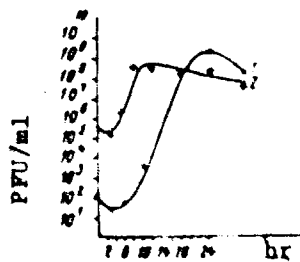
Fig. 6. Dynamics of VEE virus replication in a suspended chick embryo cell culture (population density  $3 \times 10^6$  cells/ml) at an infective dose of 0.00002 PFU/cell (1) and 2 PFU/cell (2)

Table 1. Multiplication of VEE virus in a chick embryo fibroblast culture at various cell concentrations and at various infective doses

Cell concentration (in million/ml)	Infective dose (PFU/cell)	Virus titer (PFU/ml) after 24 hr
1	1	$2.1 \cdot 10^6$
2	0.000001	$3.1 \cdot 10^6$
5	5	$5.1 \cdot 10^6$
5	0.00005	$2.1 \cdot 10^6$
7	0.1	$3.7 \cdot 10^6$
7	0.00001	$4.1 \cdot 10^6$
7	0.4	$1.1 \cdot 10^6$
10	0.00001	$1.1 \cdot 10^6$
10	2	$2.7 \cdot 10^6$
10	0.0001	$4.1 \cdot 10^6$

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ACC NR: AP8033937

Table 2. Harvest of VEE virus/cell (CEF) under varying culture conditions

Culture method	Cell density/ml $\cdot 10^6$	Max. titer after 24 hr (in PFU/ml)	Virus harvest (PFU/cell)	Average
Stationary mono-layer	0.3	$4 \cdot 10^8$	1333	1748
	0.5	$7 \cdot 10^8$	1400	
	0.8	$1.3 \cdot 10^9$	1625	
	1.5	$4 \cdot 10^8$	2633	
Roller	1.0	$7.6 \cdot 10^8$	760	1281
	1.5	$9 \cdot 10^8$	600	
	3.0	$6 \cdot 10^8$	2166	
	5.0	$8 \cdot 10^8$	1600	
Suspension	2.0	$2.1 \cdot 10^9$	1050	349
	5.0	$8 \cdot 10^8$	100	
	7.0	$1 \cdot 10^9$	143	
	10.0	$4.4 \cdot 10^8$	44	

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ACC NR: AP8033937

growing and harvesting virus in this environment. The spinner system gave a much higher virus yield than the stirrer system. Maximal titers in the former  $4.4 \cdot 10^8$  PFU/ml and in the latter  $2.1 \cdot 10^9$  PFU/ml were obtained after 48 hr in both cases. Optimal technological conditions were discussed for propagation of VEE virus in CEF cells. Optimal mixer speed was 200 rpm and optimal gas speed rate was 400 ml/min. After 24 hr of culture the contents of the tanks were drawn off and centrifuged at 6000 g for 15 min. The infectious titer of virus in the supernatant liquid approached  $10^9$  PFU/ml. The entire process for producing such a batch of virus required 26—28 hr. Orig. art. has: 6 figures and 2 tables. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 200ct67/ ORIG REF: 006/ OTH REF: 011

Cord 9/9

SOURCE CODE: UR/0346/68/000/009/0068/0073

ORG: Moscow Veterinary Academy (Moskovskaya veterinarnaya akademiya)

SOURCE: Veterinariya, no. 9, 1968, 68-73

**ABSTRACT:** A punch card system for analyzing veterinary data is described. It records data on the nutrition and the general physiological state of animals used for experimental treatment of non-infectious diseases. It is designed to systematize statistical mathematical data from clinical and laboratory experiments for easy correlation and analysis. Each card is divided into 80 fields in which certain fields or columns include certain data. This grouping

UDC: 619:616.1/.9:311.17

ACC NR: AF8031725

Identifying number

Area

Establishment Weight of offspring

Cage number Date of inspection

Product Sexing date Autism date Metabolic data

Cage weight Date of experimental

Date of offspring

Daily food

Cation

Fig. 1. Sample card

Cord 2/3

ACC NR: AP8031725

of information facilitates effective veterinary procedures in classifying and recording noninfectious diseases of animals. Orig. art. has: 1 figure and 3 tables. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 3/3

ACC NR: AP8033596

SOURCE CODE: UR/0016/68/000/009/0079/0083

AUTHOR: Ostrovskaya, N. N.; Tolmacheva, T. A.

ORG: Institute of Epidemiology and Microbiology im. Gamaleya AMN SSSR, Moscow (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Dynamics of adsorption of *Brucella* phage Tb on cells of *Br. abortus*, *melitensis* and *suis*

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 79-83

TOPIC TAGS: bacteriophage, brucella

ABSTRACT: Study of adsorption of *Brucella* phage Tb on live and heat-killed *Br. abortus*, *Br. melitensis*, and *Br. suis* showed that interaction between phage and cells of various *Brucella* species was different and depended on the species of each strain. During interaction of phage particles with cells of *Br. abortus*, all stages of interaction were observed: adsorption, latent period, and intense accumulation of phage particles in the medium due to intracellular reproduction. Interaction between *Br. suis* was limited to the first stage of adsorption, which proceeded more intensively than with *abortus* cells. Increase in

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UDC: 576.851.42.095.38:576.858.9

ACC NR: AP8033596

phage titer in the medium was not observed with *Br. suis*. *Br. melitensis* was completely inert to *Brucella* phage Tb: in most cases phage was not adsorbed on *melitensis* cells. It was concluded that Tb phage can be used to differentiate *Brucella* species. *Br. abortus* strains from types 1, 7, and 9 were used, as well as *melitensis* strains of type 1, 2, and 3, and *suis* strains of type 1 and type 4. The most intense adsorption was observed after 1.5—3 hr of contact. Orig. art. has: 2 figures.  
[WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: 29Mar67/ ORIG REF: 005/ OTH REF: 009

Card 2/2

ACC NR: AP8036377

SOURCE CODE: UR/9079/68/000/004/0039/0041

AUTHOR: Palvaniyazov, M.

ORG: Karakalpakskiy Branch, AN UzSSR (Kazakalpakskiy filial AN UzSSR)

TITLE: Fluctuation in the population of foxes and Siberian polecats *Mustela putorius* L. in Ustyurt in relation to the population density of rodents

SOURCE: Uzbekskiy biologicheskiy zhurnal, no. 4, 1968, 39-41

TOPIC TAGS: rodent, animal colony

ABSTRACT: Results are reported of a study showing that the population of foxes and Siberian polecats (*Mustela putorius* L.) in Ustyurt is related to the population density of rodents. The study was done in the northern, central, and southern parts of Ustyurt from 1962 to 1965. It was determined that foxes and polecats in the region feed primarily on rodents, especially gerbils. The density of the rodent population depends on the climate, and especially on the amount of rainfall. Thus, in 1962, when the rainfall was high and food was abundant, there was a marked increase in the rodent population. In 1963, when a spring drought

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UDC: 599.742.1+599.742.4(575.172):599.32

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ACC NR: AP8036377

Table 1. Number of large-toothed susliks and great gerbils in 1 hectare; number of midday gerbils and jerboas in 100 traps in 1 day

Site of the study	1962				1963				1964			
	Large-toothed suslik	Great gerbil	Midday gerbil	Jerboa (Dipodidae)	Large-toothed suslik	Great gerbil	Midday gerbil	Jerboa (Dipodidae)	Large-toothed suslik	Great gerbil	Midday gerbil	Jerboa (Dipodidae)
Aydabol	3.0	3.6	2.0	2.6	1.8	2.2	1.0	2.0	2.5	4.8	2.2	2.2
Churuk	1.0	2.5	4.2	2.1	1.0	1.3	3.1	1.7	1.7	3.7	4.5	1.8
Kosbulak	0.7	1.8	4.0	2.3	0.5	1.0	3.0	1.6	1.0	4.0	4.3	2.1
Urdabay	1.2	2.1	2.5	2.4	0.8	0.6	1.0	1.5	1.0	2.7	3.0	2.0
Barsakelmes	0.3	0.3	—	1.0	0.3	0.3	—	1.0	0.6	0.3	—	1.1
Shakhpakhty	0.7	2.8	2.1	1.8	0.5	0.5	1.0	1.1	1.0	2.0	1.0	1.5
Assekeaudan	1.0	2.0	3.0	2.0	1.0	0.8	2.0	1.2	1.0	1.3	2.2	2.8
Kazakhly	1.0	3.1	1.0	2.4	0.8	1.8	1.0	1.4	1.0	3.2	2.0	2.5
Karabaur	0.5	2.2	—	1.0	0.5	0.6	1.0	1.0	0.7	2.1	2.0	1.6
Average count	1.1	2.3	2.1	1.9	0.8	1.1	1.3	1.4	1.2	2.7	2.3	1.8

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ACC NR: AP8036377

Table 2. Number of animals caught in 100 traps in 1 day

Site of the study	1962		1963		1964		1965
	Foxes	Pole-cats	Foxes	Pole-cats	Foxes	Pole-cats	Foxes
Aydabol	2.6	0.5	3.0	1.0	1.7	0.6	2.6
Churuk	2.1	1.0	2.5	1.0	1.4	1.8	2.2
Kosbulak	1.3	1.2	2.2	0.8	1.0	1.0	1.9
Urdabay	2.0	0.5	2.4	0.8	1.0	0.6	2.0
Barsakelmes	0.4	0.6	0.4	0.5	0.3	—	0.4
Shakhpakhty	2.0	0.8	2.0	1.2	1.1	1.0	1.7
Assekeaudan	2.0	1.4	2.5	1.1	1.0	0.5	1.5
Kazakhly	2.1	0.5	2.6	1.0	1.5	0.5	2.0
Karabaur	1.2	0.6	2.0	1.0	0.9	0.7	1.5
Average count	1.7	0.6	2.2	0.9	1.1	0.6	1.7

resulted in a decreased food supply for rodents, the density of the population decreased to approximately 50% of the 1962 counts. A comparison of the rodent population with the population of foxes and pole-cats in various regions of Ustyurt for the years of the study is shown in the tables. Orig. art. has: 2 tables. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 10Jan67/ ORIG REF: 002

Card 3/3

ACC NR: AT8032545

SOURCE CODE: UR/3407/68/029/000/0212/0215

AUTHOR: Panchenko, S. G.

ORG: Institute of Zoology, Academy of Sciences, KazSSR (Institut zoologii Akademii nauk Kazakhskoy SSR)

TITLE: Migration of game birds in the northern Semipalatinsk oblast

SOURCE: AN Kazakh SSR. Institut zoologii. Trudy, v. 29, 1968. Novosti ornitologii Kazakhstana (Ornithological news of Kazakhstan), 212-215

TOPIC TAGS: animal colony, biologic ecology

ABSTRACT: Results are reported on a study carried out from 1956 to 1963 to determine the times of migration of fowl of the area around Lake Dekal (50 km northeast of Semipalatinsk), and around a group of lakes in the Beshkaragayskiy rayon, 150-200 km northwest of Semipalatinsk. A comparison of the observations with those made by Selevin in 1930 indicate that there has been no basic change in the general pattern of migration since that time. Average times of migration for 27 species of fowl are

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UDC: 591.543.43

ACC NR: AT8032545

Times of migration of birds in the Semipalatinsk oblast from 1956 to 1963.

Species of bird	Spring	Fall
	Avg. times of migration	Avg. times of migration
Great crested grebe ( <i>Podiceps cristatus</i> )	25--28.IV	12.X
Blacknecked grebe ( <i>Podiceps caspius</i> )	25.IV	10.IX
Goosander ( <i>Mergus merganser</i> )	10--18.IV	25.X
Golden-eye ( <i>Bucephala clangula</i> )	25.IV	24--25.X
Tufted duck ( <i>Myroca fuligula</i> )	25.IV	14.X
Blue duck	20--28.IV	10--20.X
Shoveller ( <i>Spatula clypeata</i> )	25--28.IV	11--12.X
Teal ( <i>Anas crecca</i> )	25--28.IV	8--20.X
Garganey ( <i>Anas querquedula</i> )	25.IV	20--21.IX

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ACC NR: AT8032545

Pintail ( <i>Anas acuta</i> )	30.III—15.IV	16—26.X
Widgeon ( <i>Anas penelope</i> )	—	—
Gadwall ( <i>Anas strepera</i> )	—	11—14.X
Mallard ( <i>Anas platyrhynchos</i> )	3—15.IV	14—21.X
Sheld-duck ( <i>Tadorna tadorna</i> )	—	—
Ruddy sheldrake ( <i>Casarca casarca</i> )	30.III	—
Whooper swan ( <i>Cygnus cygnus</i> )	13—20.IV	—
Gray-lag goose ( <i>Anser anser</i> )	3—11.IV	7—20.X
Quail	15.V	3.IX
Coot ( <i>Fulica atra</i> )	25.IV	5—10.X
Moorhen	—	30.IX—5.X
Common crane ( <i>Grus grus</i> )	13—27.IV	1—10.X
Lapwing ( <i>Vanellus vanellus</i> )	5—15.IV	20—29.VIII
Sociable plover ( <i>Chettusia gregaria</i> ) (Pallas)	1—8.IV	20—30.VIII
Curlew ( <i>Numenius arquata</i> L.)	20—27.IV	25.VIII—3.IX

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ACC NR: AT8032545

Greenshank ( <i>Totanus nebularius</i> ) (Gunnerus)	15—20.IV	—
Common snipe ( <i>Capella gallinago</i> )	3—13.IV	20.VIII—15.IX
Oriental turtledove ( <i>Streptopelia orientalis</i> Latham)	3—10.V	9—15.IX

shown in the Table. The direction of spring migration was toward the north and northeast; fall migration was toward the south and southwest. Orig. art. has: 1 table. [WA-50, CBE No. 3d][XF]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004

Card 4/4



ACC NR: AP8031321

SOURCE CODE: UR/0399/68/000/009/0113/0118

AUTHOR: Parmenov, V. I. (Docent; Gomel')

ORG: none

TITLE: Bites of snakes and other poisonous animals

SOURCE: Sovetskaya meditsina, no. 9, 1968, 113-118

TOPIC TAGS: insect, venom, reptiles, animal

ABSTRACT: Among the 56 species of snakes known to inhabit the USSR, the most widely distributed poisonous species are the Viperinae (common adder *Vipera berus* L., Renard's viper *Vipera renardi*, horned viper *Cerastes cornutus*, Radde's viper *Vipera raddei*, and the Caucasian viper. The blunt-nosed viper *Vipera lebetina*, indigenous to the Caucasus and the Central Asian republics, is one of the most poisonous. The carpet viper *Echis carinata* L. and the Central Asian cobra are also found in these areas. The Ussurian mamushi *Agkistrodon blomhoffi ussuriensis* is found in the steppes of Kazakhstan and the Far East. Victims of bites from Viperinae receive 30 mg of venom, and victims of cobra bites receive 180 mg of venom. Dried venom retains its poisonous properties up to 26 yr. Venom is a complex enzyme belonging predominantly to the protease group; the other components are only slightly toxic. Venoms of Viperinae

Card 1/2

UDC: 615.94

ACC NR: AP8031321

and Crotolinae contain proteolytic and blood-coagulating properties. The purified enzyme Nalpa protease has been proven much more toxic than the whole enzyme. A neurotoxin krototaktin has been demonstrated in the venom of Crotolinae. Monovalent and polyvalent antivenom sera used for the treatment of snakebites in the USSR are prepared according to recommendations of E. N. Pavlovskiy and A. Kalmett. Attenuation of the effect of venom by propylgallate has been reported. Good therapeutic effects with  $\epsilon$ -aminocaproic acid and iniprol have also been demonstrated. Bites from other poisonous animals, except wasps and honeybees, occur only in the southern areas of the USSR. The black scorpion, inhabiting Central Asia, the Crimea and the Caucasus, and the karakurt spider *Lathrodectus tredecimguttatus*, inhabiting the Ukraine, the lower Volga region, Moldavia, Central Asia, the Crimea, and the Caucasus, are especially dangerous. The karakurt spider is considered the most dangerous of the 1068 species found in the USSR. The venom of scorpions, karakurt spiders, bees, and wasps is similar to snake venom, and antivenom sera prepared from cobra venom has been used for treatment. However, anti-karakurt serum, prepared by the Tashkent Institute of Vaccines and Sera, administered in 20-60-ml doses is the preferred method of treatment.

[UA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 1968 ORIG REF: 004

Card 2/2

ACC NR: AP8035375

SOURCE CODE: UR/0439/68/047/009/1354/1358

AUTHOR: Petrov, P. A.; Goncharov, A. I.; Labunets, N. S.; Akhundov, M. A.; Osyko, P. I.

ORG: Stavropol Branch, All-Union Scientific Research Antiplague Institute "Mikrob" (Stavropol'skiy filial Vsesoyuznogo nauchno-issledovatel'skogo protivochumnogo instituta); Mingechnik Antiplague Department (Mingechnikskoye protivochumnoye otdeleniye)

TITLE: The life span and migration of fleas of the red-tailed Libyan jird in the Caucasian-plain focus of plague

SOURCE: Zoologicheskiy zhurnal, v. 47, no. 9, 1968, 1354-1358

TOPIC TAGS: epidemiologic focus, plague, agent vector cycle, disease carrying insect

ABSTRACT: Gerbils were tagged with radioactive isotopes in 1965-1966 in the Bozdag foothills of Azerbaydzhan to trace flea-gerbil contacts. Tagged gerbils were used as models of infected animals, and fleas containing tagged blood as a result of feeding on gerbils were considered infected. A single red-tailed Libyan jird fed in one day 31.4 fleas in the spring, 40.3 in the summer, 5 in the fall, and 70.8

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UDC: 595.775:591.5

ACC NR: AP8035375

in the winter. *Xenopsylla conformis* fleas made up 29.4% of the population in the spring, 40.3% in the fall, and 2.66% in the spring. Tagged *X. conformis* fleas were not observed in the winter. In the course of one cycle of transmission of infection (rodent-flea-rodent), occupying about 10 days, fleas were carried 104 m in the spring, 50 m in the fall, and 151 m in the winter. In the same 10-day period, "healthy" untagged jirds carried tagged fleas 39 m from the place of tagging in the spring, 15 m in the summer, 164 m in the fall, and 30 m in the winter. A total of 152 out of 900 *X. conformis* fleas, placed in an uninhabited gerbil colony on November 1, survived until April 6. Other flea species (*Ceratophyllus laeviceps* and *Coptopsylla caucasica*), were not found during excavation of this colony. Jerboas apparently can carry gerbil fleas in this area and *X. conformis* can feed on jerboas. The possibility of transfer of ectoparasites (particularly *C. consimilis*) between gerbils and voles was also established. The observed high degree of feeding activity of *X. conformis* in spring and summer corresponded with the period of most intense multiplication of this species. Orig, art. has: 4 tables. [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004

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ACC NR: AP8032176

SOURCE CODE: UR/0476/68/047/003/0656/0670

AUTHOR: Petrova, A. D.

ORG: Department of Entomology, Moscow State University, Moscow (Kafedra entomologii Moskovskogo gosudarstvennogo universitet)

TITLE: Gamasoid ticks of the genus *Parholaspulus* in the fauna of the Soviet Union

SOURCE: Entomologicheskoye obozreniye, v. 47, no. 3, 1968, 656-670

TOPIC TAGS: tick, disease vector, disease carrying tick, zoology, zoogeography, parasite

ABSTRACT: In accordance with a key to the genus *Parholaspulus*, several species native to the Soviet Union were determined. Males and females of each of the nine native species are described and illustrated and the site of capture, the month, and the year are given. Most sites were in the Primorskiy Kray. Orig. art. has: 9 figures.

[WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 003

Card 1/1

UDC: 595.422(47)

ACC NR: AP8032722

SOURCE CODE: UR/3404/65/016/000/0270/0272

AUTHOR: Plakhova, N. B.; Deyeva, A. I.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Obtaining gamma-globulin against tickborne encephalitis in industrial conditions. Report II

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 270-272

TOPIC TAGS: encephalitis, gamma globulin

ABSTRACT: Precipitation of antiencephalitic gamma-globulin should be performed so that the final pH of the mixture after precipitation is 6.4 ( $\pm 0.2$ ). The optimum conditions for dissolving gamma-globulin from a globulin mixture (second precipitation) involve dissolving in 3 volumes of physiological solution and 1.5 volumes distilled water. Precipitation of gamma-globulin (third precipitation) should be performed at pH 7.0. The object is a maximum yield of gamma-globulin from horse serum. All

Card 1/2

ACC NR: AP8032722

tests were monitored electrophoretically and checked in the neutralization reaction. A two-fold increase in gamma-globulin yield did not decrease the purity of the preparation or its specific activity. Orig. art. has: 2 tables. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8033874

SOURCE CODE: UR/0244/68/027/005/0055/0062

AUTHOR: Pokrovskiy, A. A. (Head, Professor,; Nenov, P. Ts.

ORG: Laboratory of Clinical Enzymology/Head—Prof. A. A. Pokrovskiy/,  
Institute of Nutrition, AMN SSSR, Moscow (Laboratoriya klinicheskoy  
enzimologii Instituta pitaniya AMN SSSR)

TITLE: Effects of Sevin on the enzyme constellation of the blood and  
tissues of warm blooded animals

SOURCE: Voprosy pitaniya, v. 27, no. 5, 1968, 55-62

TOPIC TAGS: sevin poison effect, enzyme kinetics, enzyme activity,  
blood, mammal

ABSTRACT: Acute Sevin toxicity was studied in Wistar rats which had received a single dose of 500 mg/kg body wt. Blood and liver levels of cholinesterase, butyrylcholinesterase, tributyrinase, aspartate aminotransferase and alanine aminotransferase, 1-fructosomonophosphate aldolase, and blood ornithine carbamoyltransferase were assayed 1, 5, and 15 days after Sevin administration. Brain cholinesterase and butyrylcholinesterase and pancreatic lipase were assayed. Blood and liver proteins were studied. Liver and pancreatic tissue were examined histologically to determine whether dystrophic changes occurred. Maximum cholinesterase

Card 1/2

UDC: 615.285.015.4:612.128

ACC NR: AP8033874

inhibition in the blood and brain (77% and 73% respectively) occurred within 3—5 hr after Sevin administration. Normal brain cholinesterase was restored within 5 days. Blood and liver cholinesterase, but not blood butylcholinesterase, normalized within 10—15 days. Since blood butylcholinesterase is synthesized in the liver, its failure to return to normal suggests liver parenchyma damage. An increase in blood aminotransferases and 1-fructosomonophosphate was accompanied by a decrease in liver 1-fructosemonophosphate and alanine aminotransferase. There was inhibition in liver tributyrinase and pancreatic lipase. There was a slight decrease in liver proteins on day 15 of the experiment; dystrophic changes were noted on days 5—15. Chronic toxicity studies were then done on animals which had received 60 mg/kg, 30 mg/kg, and 5 mg/kg of Sevin per day for 6 months. The maximum decrease in blood and brain cholinesterase activity occurred between days 7 and 14. After one month, enzyme activity began to increase and blood levels returned to normal at 90 days in animals receiving 30 mg/kg, and at 180 days in animals receiving 60 mg/kg. Brain enzyme activity recovered more rapidly. Dystrophic liver changes paralleled blood and brain enzyme disorders. In animals receiving 5 mg/kg/day, significant changes were noted only in pancreatic lipase; after 180 days, this enzyme was 76.8% of control values. Orig. art. has: 2 tables and 3 figures. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 05Jul68/ ORIG REF: 012/ OTH REF: 004

Card 2/2

ACC NR: AP8034069

SOURCE CODE: UR/0177/68/000/010/0058/0059

AUTHOR: Polyak, M. S.

ORG: none

TITLE: The use of morphocycline during experimental anaerobic infection

SOURCE: *Voenno-meditsinskiy zhurnal*, no. 10, 1968, 58-59

TOPIC TAGS: clostridium, drug treatment

ABSTRACT: Study of experimental infections caused by *Cl. perfringens* types F and A and *Cl. histolyticum* showed that morphocycline (morpholine methyltetracycline) has a more pronounced therapeutic effect than either tetracycline hydrochloride or tetracycline base, which are intended for intramuscular or oral administration. Morphocycline is intended for intravenous use. In white mice infected with *Cl. perfringens* type F, a morphocycline dose of 75 units increased the number of surviving animals from 45 to 89%, as compared with 66% survivability for a 300-unit dose of tetracycline hydrochloride, and a 55.6% survival rate for the same unit dose of tetracycline base. Neither tetracycline hydrochloride nor tetracycline base protected animals infected with

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UDC: 615.779.9:616.9-092.3

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ACC NR: AP8034069

*Cl. histolyticum*, as compared with a statistically reliable protective effect of 150--300 unit doses of morphocycline. [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AP8033813

SOURCE CODE: UR/0197/68/000/009/0079/0083

AUTHOR: Popena, B. A.

ORG: Institute of Microbiology im. A. Kirkhenshteyn, AN LatSSR (Institut mikrobiologii AN LatSSR)

TITLE: Changes in the relationships of interferon and Vi-antigen formation of influenza virus under the effect of certain vitamins

SOURCE: AN LatSSR. Izvestiya, no. 9, 1968, 79-83

TOPIC TAGS: interferon, antigen, influenza virus, vitamin

ABSTRACT: Interferon and V-a. tigens are formed in direct proportion to the amount of vitamins in the allantoic fluid of the living chick embryo. There is a inverse relationship in interferon and V-antigen formation under the influence of vitamins B<sub>6</sub> and B<sub>12</sub>, when given one hour after infection of the embryo with influenza virus. Orig. art. has: 5 figures and 1 table. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: 30May68/ ORIG REF: 002/ OTH REF: 008

Card 1/1

UDC: 576.858.575.809.7:612.015.6

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ACC NR: AP8034547

SOURCE CODE: UR/0399/68/000/010/0095/0099

AUTHOR: Pribylova, N. N.

ORG: Department of Faculty Therapy /Head--Prof. Sh. I. Ratner/ and  
Department of Infectious Diseases /Head--Prof. S. Ye. Shapiro/, Khaba-  
rovsk Medical Institute (Kafedra fakul'tetskoy terapii i kafedra  
infektsionnykh bolezney Khabarovskogo meditsinskogo instituta)

TITLE: Some indicators of excretory gastric function in renal hemor-  
rhagic fevers

SOURCE: Sovetskaya meditsina, no. 10, 1968, 95-99

TOPIC TAGS: hemorrhagic nephrosonephritis, human ailment, digestion,  
pathology

ABSTRACT: Examinations of 42 persons with renal hemorrhagic fever  
revealed oliguria or anuria and a high nitrogenous content in the  
gastric glands at the height of the disease. Residual nitrogen levels  
of the blood increased sharply and were in excess of blood levels.  
The graver the condition the lower was the gastric chloride content  
Potassium levels in the stomach contents rose, accompanied by

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UDC: 616.61-002.151-07:616.33-009.1-07

ACC NR: AP8034547

hyperkalemia and followed by cell degeneration. Sodium content  
decreased and remained low during convalescence. Orig. art. has:  
1 table. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 006

Card 2/2

ACC NR: AT8032730

SOURCE CODE: UR/3404/63/016/000/0313/0317

AUTHOR: Prilutskaya, I. M.; Bychkova, M. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera  
(Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Improved technology of lyophilization of antigangrene sera

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok.  
Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii  
(Problems of epidemiology, microbiology and immunology), 313-317

TOPIC TAGS: clostridium, lyophilization, blood serum

ABSTRACT: The most efficient method of lyophilization of antigangrene (anticlostridial) sera using the available equipment consisted of lyophilization in IEM-3 chambers with cooling in a 2-stage refrigerator AK-FDS-1a. Use of special stainless steel tanks permitted preliminary freezing in a refrigerator instead of the cumbersome agitation in liquid nitrogen and alcohol previously required. The small tanks contained 3 l, and the capacity of the lyophilization equipment was 36 l. Lyophilization was conducted by this method in 48 hr, 12 hr less than by the previous method. This method produced sterile, dry

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ACC NR: AT8032730

antigangrene serum, soluble in 1-2 min, with only slight losses of antitoxin titer. Losses in antitoxin titer varied with the type of serum, from a low of 4.2% for lyophilized antisepticum (*Cl. septicum*) sera, 8.6% for antiperfringens, 12.1% for monovalent antinovyi serum or 17.1% for divalent antinovyi serum. Orig. art. has: 1 table and 1 figure. [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 003

Card 2/2



ACC NR: AP8033961

SOURCE CODE: UR/0016/68/000/010/0086/0090

AUTHOR: Pshenichnov, A. V.; Pecherkina, S. A.; Kolebatova, Ye. A.

ORG: Perm Medical Institute (Permskiy meditsinskiy institut); Perm Institute of Vaccine and Sera (Permskiy institut vaktsin i syvorotok)

TITLE: Adaptation of *Rickettsia prowazeki* to a semisynthetic avitalized nutrient medium

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 10, 1968, 86-90

TOPIC TAGS: rickettsia, nutrient medium, culture method, serology

ABSTRACT: *Rickettsia prowazeki*, strain E, was cultured on avitalized nutrient medium KZHM199 (composition: KZHM + 18% 199 medium) and KZHMAl (composition: KZHM + 7% aqueous aloe extract). Fifteen serial passages were carried out over one year. *Rickettsia* were indicated in the nutrient medium with the aid of various microscopic, serological, and biological methods after the fifth, tenth, and fifteenth passages. The cultures obtained during the sampling process were all typical of *Rickettsia prowazeki* cultures. They all possessed a low reproductive capacity and one of them was lost after a year on KZHMAl medium.

Cord 1/2

UDC: 576.851.71.093.3

ACC NR: AP8033961

[Abstractor's note: meaning of abbreviation KZHM is not known]. The remaining cultures KZHM 199 medium gave high yields after the fifteenth passage. The adaptation was considered to be due to the presence of "g-forms" and other mutants on the 199 medium. However, no true growth occurred extracellularly in these media. Passaging was necessary to maintain the reproductive rate. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 18Mar68

Cord 2/2

- 263 -

AUTHOR: Rachinskiy, V. V.; Davidova, Ye. G.; Korchak, O. B.

ORG: Department of Applied Atomic Physics and Radiochemistry,  
Timiryazev Agricultural Academy, Moscow (Kafedra prikladnoy atomnoy  
fiziki i radiokhimii Timiryazevskaya sel'skokhozyaystvennaya akademiya)

TITLE: Analysis of equations describing the increase in biomass of  
microorganisms under static conditions

SOURCE: Moscow. Sel'sko-khozyaystvennaya akademiya imeni K. A.  
Timiryazeva. Izvestiya, no. 5, 1968, 227-229

TOPIC TAGS: bacteria growth, culture method, mathematic modeling

ABSTRACT: Equation 1 describes growth phenomena of the microbial biomass  
under static culture conditions with mixing:

$$\varphi = 0,5 \left[ 1 - \operatorname{erf} \left( K \cdot \frac{1-\tau}{\sqrt{\tau}} \right) \right], \quad (1)$$

where erf is the symbol of the Kramp function, or the error integral;  
 $\tau$  is dimensionless time; and  $K$  is a dimensionless empirical parameter.  
Absolute growth rate is obtained by differentiation, and yields equations  
2 and 3:

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UDC: 582.282.23.08

ACC NR: AP8033982

$$\frac{d\varphi}{d\tau} = \frac{K}{2\sqrt{\pi}} \cdot \frac{1+\tau}{\tau\sqrt{\tau}} \exp \left[ -K^2 \frac{(1-\tau)^2}{\tau} \right]. \quad (2)$$

$$\left( \frac{d\varphi}{d\tau} \right)_{\tau=1} = \frac{K}{\sqrt{\pi}}. \quad (3)$$

Equation 3 holds when  $\tau = 1$ . Maximal growth rate can be obtained by  
differentiation of 2. From this setting,  $\tau = \tau_m$  at which  $d\varphi/d\tau$  is a

$$\frac{d^2\varphi}{d\tau^2} = \left[ \frac{2\tau^{3/2} - \tau^{1/2}(\tau+1)}{2\tau^3} + K^2 \frac{\tau+1}{\tau^{3/2}} \cdot \frac{1-\tau}{\tau^3} \right] e^{-K^2 \frac{(1-\tau)^2}{\tau}} \quad (4)$$

maximum, and  $d^2\varphi/d\tau^2 = 0$ . Relative growth rate per unit of biomass is

$$2K^2(1+\tau_m)(1-\tau_m)^2 - \tau_m(\tau_m+3) = 0 \quad (5)$$

shown in:

$$\frac{1}{\varphi} \cdot \frac{d\varphi}{d\tau} = \frac{(K/2\sqrt{\pi})(1+\tau)\tau^{-3/2} \exp[-K^2(1-\tau)^2/\tau]}{0,5[1 - \operatorname{erf}(K(1-\tau)/\sqrt{\tau})]}. \quad (6)$$

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ACC NR: AP803398.

$$\frac{d}{d\tau} [(d\varphi/d\tau)/\varphi] = \left[ \frac{d^2}{d\tau^2} \varphi - \left( \frac{d\varphi}{d\tau} \right)^2 \right] / \varphi^2 = 0 \quad (7)$$

$$\frac{d^2\varphi}{d\tau^2} \cdot \varphi - \left( \frac{d\varphi}{d\tau} \right)^2 = 0. \quad (8)$$

In equation 8, one can solve for  $\tau$ . In situations where  $\tau$  approaches 0, equation 9 applies:

$$1 - \operatorname{erf} w \approx \frac{e^{-w^2}}{\sqrt{\pi} \cdot w} \left[ 1 - \frac{1}{2w^2} + \frac{1.3}{(2w^2)^2} - \frac{1.3.5}{(2w^2)^3} + \dots \right] \quad (9)$$

and from that we have:

$$\frac{1}{\varphi} \cdot \frac{d\varphi}{d\tau} = \frac{(K/2\sqrt{\pi})(1+\tau)\tau^{-3/2} \exp[-K^2(1-\tau)^2/\tau]}{(1/2K\sqrt{\pi})(1-\tau)^{-1/2} \exp[-K^2(1-\tau)^2/\tau]} = K^2 \left( \frac{1}{\tau^2} - 1 \right),$$

where  $\lim_{\tau \rightarrow 0} \left( \frac{1}{\varphi} \cdot \frac{d\varphi}{d\tau} \right) = \infty$ . (10)

At  $\tau \rightarrow \infty$ :  $\varphi \rightarrow 1$ ,  $d\varphi/d\tau \rightarrow 0$ , consequently  $\lim_{\tau \rightarrow \infty} (d\varphi/d\tau)/\varphi = 0$ .

Thus, the relative theoretical growth rate at  $0 < \tau < \infty$  changes as  $\infty < (d\varphi/d\tau)/\varphi < 0$ . Calculated curves are shown in Figures 1, 2, and 3.

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ACC NR: AP8033982

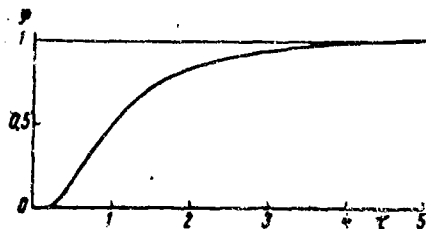


Fig. 1. Growth curve at  $K = 1$

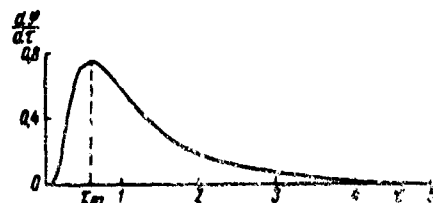


Fig. 2. Graph of the dependence of absolute growth rate on time at  $K = 1$

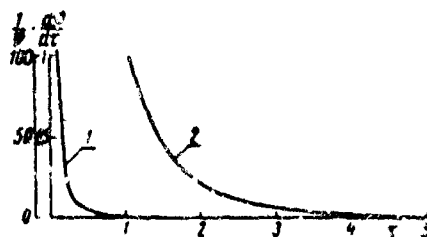


Fig. 3. Relationship of relative growth rate to time at  $K = 1:10$  0 + 100 scale; continuous curve from 0 + 1 scale

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ACC NR: AP6036376

Orig. art. has: 3 figures and 10 equations. [WA-52; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: 26Mar68/ ORIG REF: 003

Card 5/5

ACC NR: AP6036376

SOURCE CODE: UR/9079/68/000/004/0016/0018

AUTHOR: Rakhimova, I. V.; Kharlamov, I. A.; Khazanovich, R. L.;  
Khalmatov, Kh. Kh.

ORG: Tashkent Pharmaceutical Institute (Tashkentskiy farmatsevticheskiy  
institut)

TITLE: On the antimicrobial action of substances isolated from burdock  
(*Arctium*)

SOURCE: Uzbekskiy biologicheskiy zhurnal, no. 4, 1968, 16-18

TOPIC TAGS: plant chemistry, bacteriostasis, bacteriocide

ABSTRACT: *Arctium tomentosum* Mill. and *Arctium leiospermum* Juz. et Serg.  
were collected in the foothills of Chimgan and Bogustan in the Tashkent  
oblast. The antimicrobial properties of leaves, flowers, fruit, and  
roots from the plants were studied by the diffusion method on a 2-layer  
spermaceti agar. These substances were titrated in meat-extract broth in  
dilutions of 1:50, 1:100, 1:200 and 1:400. Test organisms were 24-hr  
agar cultures of *Staphylococcus aureus*, strain 209, *Pseudomonas pyo-*  
*cyanea*, *Shigella dysenteriae*, *Proteus vulgaris* and *Escherichia coli*. The  
greatest antimicrobial effect was noted with an ethereal oil from the

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UDC: 615.779.9:582.68

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ACC NR: AP8036376

roots; the sterile zone for the 5 microorganisms lay within 45—55 mm. The ethereal oil from the leaves showed less antimicrobial effect than root oils. A powder obtained from ethereal oil residues showed marked antimicrobial action, probably due to the high content of polyphenol compounds. Negative results were obtained with flavanoids, positive results were noted with coumarin derivatives. In contrast to the coumarins, sesquiterpene lactones showed no antimicrobial activity; this is probably due to the position of the lactone group. Tannins obtained from the polyphenols and the coumarins may be used in gastrointestinal diseases. The fatty and ethereal oils are recommended for the treatment of skin diseases. Orig. art. has: 1 table. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 22May67/ ORIG REF: 003/ OTH REF: 001

Card 2/2

ACC NR: AT8032537

SOURCE CODE: UF 3407/68/029/000/0050/0057

AUTHOR: Rodionov, E. F.

ORG: Institute of Zoology, AN KazSSR (Institut zoologii AN KazSSR)

TITLE: Biology of *Troglodytes troglodytes* in Zailiysky Alatau

SOURCE: AN Kazakh SSR. Institut zoologii. Trudy, v. 29, 1968. Novosti ornitologii Kazakhstana (Ornithological news of Kazakhstan), 50-57

TOPIC TAGS: zoology, ornithology, zoogeography

ABSTRACT: *Troglodytes troglodytes* nests are most commonly found along rivers and streams in Kazakhstan. Nesting begins in May and most nests are occupied by the end of June. Of these nests, 72% have western exposure and 9% eastern exposure. The males build the nests for the females. Fecundity is high; eggs were found in 46.5% of nests, and in the nest, live young by the end of the egg-laying season. Flight habits and mortality rates of young birds in different locations are given. Orig. art. has: 2 figures. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 001

Card 1/1

UDC: 598.8

- 267 -

ACC NR: AP8028248

SOURCE CODE: UR/0346/58/000/008/0009/0031

AUTHOR: Rozhdestvenskiy, A. (Candidate of biological sciences);  
Skupoy, M. F. (Chief of veterinary section); Burshteyn, I. S. (Head)

ORG: none

TITLE: Problems in the epizootiology of rabies

SOURCE: Veterinariya, no. 8, 1968, 29-31

TOPIC TAGS: rabies, human ailment, epizootiology

ABSTRACT: In Chernigov oblast red foxes are the source of rabies infection in domestic animals (cattle, swine, and horses). A rabid animal is likely to infect several animals before being caught and confined. In this area strict vaccination requirements for dogs prevail, suspect animals are immediately confined, and their victims, if they can be found, are given anti-rabies inoculations. An outbreak of rabies among pigs on a nearby kolkhoz was investigated. First cases were reports of weakness and inability to stand in three young pigs. This was later diagnosed as rabies. Nineteen days passed from the first symptoms of illness to the time when biting began. After the confirmation of diagnosis, animals were vaccinated immediately with rabies vaccine.

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UDC: 619:616.988.21-036.2

ACC NR: AP8028248

During that time, 37 pigs succumbed, 15 of which died within two weeks after completing vaccination. A fox was the source of the bites in the first three cases. The epizooty was not accompanied by a significant decrease in the numbers of foxes in the local area. It is thought that rabies is endemic in local foxes. The rabies season is at a time of increased attacks upon domestic animals by foxes. Disease often affects young foxes rather than adults. There is no tendency for wide distribution, rather all outbreaks have a local character and can be traced to animals initially bitten by a fox. The importance of small rodents in a rabies focus cannot be ignored and it is thought that there maybe circulation of virus between foxes and these rodents and general anti-rodent controls should be taken. The dead pigs all suffered from multiple wounds of the head or of the head and extremities. Babes-Negri bodies were demonstrated in the brain tissue of captured foxes. Rabies among cattle and horses most frequently is atypical in that there is little aggressiveness and other characteristic signs found in rabid dogs. In cattle, rabies can often progress as a latent infection with no overt symptoms and then can terminate suddenly in death. This section of the article was written by Rozhdestvenskiy.

\*\*\*\*\*

A study of the Vinnitsk oblast between 1951 and 1962 showed that by 1962 the number of rabies cases had decreased 11.7 times. Epizootic analysis

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ACC NR: AP8028248

showed that the majority of cases occurred among livestock in the field or in badly constructed buildings. Again foxes were the source of infection in this area and studies showed that rabies could be observed in foxes from early spring to late summer. The effect of anti-rabies measures, including confinement and vaccination of dogs, reduced the number of cases in dogs from 281 in 1951 to 7 in 1967. This part of the article was written by Skupoy and Butskteyno. Orig. art. has: 1 table.

[WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: nqne

Card 3/3

ACC NR: AP8033959

SOURCE CODE: UR/0016/68/000/010/0056/0061

AUTHOR: Rozhnova, S. Sh.

ORG: Central Scientific Research Institute of Epidemiology (Tsentral'nyy nauchno-issledovatel'skiy institut epidemiologii)

TITLE: Coproantibodies in certain intestinal diseases. Survey

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 10, 1968, 56-61

TOPIC TAGS: antigen, antibody, dysentery

ABSTRACT: The history and development of the technique of detection of coproantibodies for the laboratory diagnosis of dysentery and cholera is reviewed. The agglutination reaction for detecting coproantibodies was introduced in the Soviet Union in 1941; contradictory results led to the use of the complement-fixation reaction. This was followed by the hemagglutination reaction. However, no method has proven entirely acceptable to all investigators. Within the past decade, many studies have been devoted to the effectiveness of peroral immunization against dysentery and cholera by stimulation of coproantibody formation.

[WA-50; CBE No. 38][XF]

SUB CODE: 06/ SUBM DATE: 24Nov67/ ORIG REF: 005/ OTH REF: 025

Card

1/1

UDC: 616.34-022-008.3-097.5

ACC NR: AP8033610

SOURCE CODE: UR/0016/68/000/009/0153/0154

AUTHOR: Sadokova, Ye. A.

ORG: Leningrad Institute of Post-Graduate Medicine im. S. M. Kirov  
(Leningradskiy institut usovershenstvovaniya vrachey)

TITLE: Specific and nonspecific phagocytosis among candidiasis patients

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9,  
1968, 153-154

TOPIC TAGS: phagocytosis, fungal disease

ABSTRACT: Immunological shifts were studied in 58 patients with acute dysentery, 30 with simultaneous candidiasis and 23 excreting *Candida* (controls). In patients with mixed infection the phagocytic activity of leucocytes and the microbe number (the average of microbes per phagocyte) were low. As candidiasis progressed, phagocytosis of fungi intensified, but was dependent on the severity of the fungal infection and the age of the patients. The number of phagocytic leucocytes increased in patients treated with nystatin. Some resistant fungal cells remained viable after absorption by leucocytes, and even destroyed them. The number of leucocytes ingesting dysentery bacteria was somewhat lower than the average

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UDC: 616-002.828-022.14:616.  
.9357-07:616.155.3-008.13-074

ACC NR: AP8033610

for this infection. The agglutinin titer increased in only four patients; in 19 patients the agglutination reaction was negative. The complement fixation reaction with fungal antigen was negative in 16 patients. During mixed infection, antifungal antibodies were only observed in half the patients. It was concluded that combination of dysentery infection and either candidiasis or *Candida* carrier state (to a lesser degree) weakened the specific protection of the organism against pathogens.

[MA-50; CBE No. 38] (JC)

SUB CODE: 06/ SUBM DATE: 18Mar68

Card 2/2



ACC NR: AP8034755

SOURCE CODE: UR/9099/68/000/010/0626/0627

AUTHOR: Sarkisova, L. G.; Solov'yeva, A. I.

ORG: Uzbek Scientific-Research Institute of Sanitation, Hygiene and Occupational Diseases/Head--A. Z. Zakhidov/ (Uzbekskiy nauchno-issledovatel'skiy institut sanitarii, gigiyeny i profzabolevaniy)

TITLE: Determination of residual quantities of phosphamide in milk

SOURCE: Laboratornoye delo, no. 10, 1968, 626-627

TOPIC TAGS: insecticide, food sanitation, chromatographic analysis

ABSTRACT: A method for determining residual phosphamide in milk is presented based on the reaction of phosphamide with an alkaline solution of diazotized sulfanilic acid, resulting in the formation of a rose pigment. The phosphamide is extracted from the milk with ether and analyzed by columnar chromatography. Sensitivity of the method is 0.005 mg. The technique is specific for detection of phosphamide in milk. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 22Sep66

Card 1/1

UDC: 615.777.25-014.3+615.287-07

ACC NR: AP8032170

SOURCE CODE: UR/0411/68/004/005/0524/0527

AUTHOR: Savel'yeva, N. D.; Trykova, V. V.

ORG: Institute of Microbiology AN SSSR (Institut mikrobiologii AN SSSR)

TITLE: Methods of cultivating hydrogen utilizing microorganisms with gas nutrition

SOURCE: Prikladnaya biokhimiya i mikrobiologiya, v. 4, no. 5, 1968, 524-527

TOPIC TAGS: culture method, microorganism, fermentation equipment

ABSTRACT: Two simple devices using gas feed designed for the cultivation of microorganisms are described. In one of the devices cultivation takes place in glass vessels with shunts connected to a glass distributing comb through which the gas mixture is passed. This device is fixed to the shaker. In the other apparatus cultivation takes place in flasks closed with special rubber stoppers. These flasks are mounted on a pendulum-type shaker. Gas supply and sampling are performed with the aid of a syringe puncturing the rubber stopper. The first type of apparatus consists of thin walled glass tubing with a diameter of 25 mm. The

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UDC: 576.809.56+663.12

ACC NR: AP8032170

Table 1. Growth of the test microorganism cultures on a synthetic medium in an atmosphere of mixed  $H_2:O_2:CO_2$

Strain No.	Optical density of the bacterial cell suspension	Strain No.	Optical density of the bacterial cell suspension	Strain No.	Optical density of the bacterial cell suspension
Z-1	1.82	Z-12	0.35	Z-36	0.01
Z-2	0.07	Z-13	0.79	Z-37	0.03
Z-3	0.08	Z-14	0.42	Z-38	0.04
Z-4	0.16	Z-17	0.46	Z-39	0.03
Z-5	0.05	Z-22	0.22	Z-41	0.13
Z-6	0.25	Z-30	0.19	Z-42	0.06
Z-7	0.43	Z-31	0.57	SR	0.03
Z-8	0.40	Z-32	0.61	9R	0.57
Z-9	0.37	Z-23	0.31	H-20	1.68
Z-10	0.21	Z-34	0.04	<i>H. rukhlandii</i>	0.20
Z-11	0.40	Z-35	0.12	<i>Ps. saccharophila</i>	0.27

Legend: Growth intensity of the culture is judged by the optical density of the suspension. The density of the suspension is obtained by means of nephelometric titration using the FEK-66 apparatus, at a wave length of 430 mμ in a 5-mm cuvette with a number 4 light filter. The extinction coefficient 0.10 on a scale from 0 to 1.0 corresponds to 0.045 mg/ml dry weight of cells.

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ACC NR: AP8032170

Table 2. Growth of *Hydrogenomonas* V-1 on synthetic medium in a mixed atmosphere of  $H_2:O_2:CO_2$  at varying oxygen concentrations.

Oxygen Concentration in %	Optical density of the suspension				
	Starting	1st day	2nd day	3rd day	4th day
10	0.05	0.35	1.15	1.85	2.05
15	0.05	0.35	1.10	1.80	1.85
20	0.05	0.30	0.90	1.53	1.60
25	0.05	0.22	0.75	1.25	1.40

Legend: Growth intensity of the culture is judged by the optical density of the suspension. The density of the suspension is obtained by means of nephelometric titration using the FEK-66 apparatus, at a wave length of 430 mμ in a 5-mm cuvette with a number 4 light filter. The extinction coefficient 0.10 on a scale from 0 to 1.0 corresponds to 0.045 mg/ml dry weight of cells.

length of each tube is 14 cm, and each has a capacity of 70 ml, and the medium added for growth usually averages about 30 ml. Inserted in the center of each tube is an outlet tube having a length of 7 cm and a diameter of 8 mm. This tube is connected to the distribution comb. After seeding the culture, the tubes are connected to the distribution comb

Card 3,

ACC NR: AP8032170

NOT REPRODUCIBLE

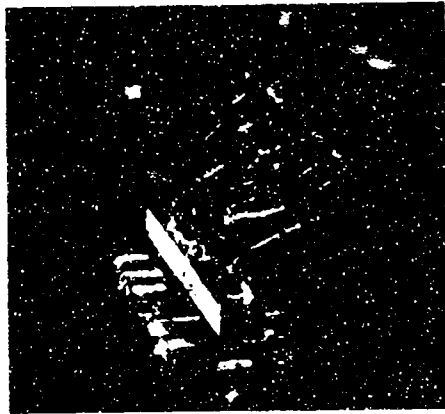


Fig. 1. Distributing comb attached to tubes

and gas feed is begun (about 0.7—0.8 atm). In actual experiments, 33 strains of hydrogen-utilizing bacteria were cultured in varying gas mixtures. Degree of growth was estimated after studies of periodic samples. In the flask method of cultivation, bacteria were cultured in common stoppered flasks sealed with special rubber stoppers as shown in Figure 2. These rubber stoppers were 10 mm in diameter. Each flask could hold 250 ml. Pressure in each flask was about 0.5 atm.

Card 4/5

ACC NR: AP8032170

NOT REPRODUCIBLE

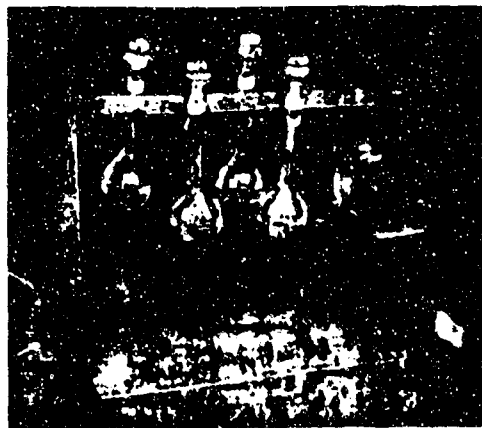


Fig. 2. Device for culturing algae in stoppered flasks mounted on a shaker

This system is suitable not only for cultured *Hydrogenomonas* but also for any microorganisms which oxidize gaseous hydrocarbons. Orig. art. has: 2 figures and 2 tables. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: 15Jun67/ ORIG REF: 001/ OTH REF: 001

Card 5/5

ACC NR: AP8034105

SOURCE CODE: UR/0358/68/037/005/0617/0617

AUTHOR: Shayman, M. S.; Stolbov, N. M.; Chistyakov, A. A.

ORG: Omsk Scientific Research Institute of Naturally Focal Infections (Omskiy nauchno-issledovatel'skiy institut prirodnoochagovykh infektsiy); Tyumen' Scientific Research Institute of Regional Infectious Pathology, Ministry of Public Health RSFSR (Tyumenskiy nauchno-issledovatel'skiy institut krayevoy infektsionnoy patologii Ministerstva zdravookhraneniya RSFSR)

TITLE: Detecting complement-fixing antibodies to agents of North Asian tick-borne scrub typhus and Q-fever in wild animals in the Far North of Western Siberia

SOURCE: Meditsinskaya parazitologiya i parazitarnyye bolezni, v. 37, no. 5, 1968, 617

TOPIC TAGS: Q fever, scrub typhus, complement fixation reaction

ABSTRACT: Results of serological study of mammals and birds trapped in the West Siberian forest tundra around Samburg (Purovskiy rayon) in

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UDC: 616.981.71-036.21(571.121)

ACC NR: AP8034105

Table 1. Results of serological studies for rickettsioses of warm-blooded animals in the Far North of Western Siberia

Animal Species	No. of animals studied		
	Total	With positive reactions	
		To tick-borne scrub typhus	To Q-fever
Birds			
Green sandpiper	5	1	2
Black-headed gull	7	1	1
Little gull	26	1	3
Arctic tern	15	0	1
Pintail	19	1	0
Little bunting	6	1	0
Sedge warbler	8	1	1
Red-spotted bluethroat	14	0	1
Mammals			
House mouse	34	1	1
Muskrat	11	1	0
Water vole	30	2	0
Root vole	166	3	1
Siberian lemming	15	1	0

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ACC NR: AP8034105

May—September 1965, and Yambura (Priural'skiy rayon in July, 1967) are shown in Table 1. The complement fixation test with both antigens was used. Orig. art. has: 1 table. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 30Jan68/

Card 3/3

ACC NR: AT8031989

SOURCE CODE: UR/0000/67/000/000/0045/0047

AUTHOR: Shikharbeyev, B. V.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: The northern boundary of the zone of *Ixodes persulcatus* ticks in Irkutsk oblast

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 45-47

TOPIC TAGS: disease carrying insect, tick

ABSTRACT: Tick collection in the Bodaybo and Mamsko-chuya rayons of Irkutsk oblast in the lower Vitim river valley showed that the northern boundary of the zone of *Ixodes persulcatus* is located at 58—59° north latitude. In this area ticks are found only in the larch-deciduous flood-plain forests and are sparse (1—2 ticks/km. Domestic animals as well as

Card 1/2

ACC NR: AT8031989

wild animals are important as tick hosts. Preimaginal tick forms were found in this area, indicating that reproduction takes place even in these severe conditions (the Vitim-Patom upland has an altitude of 850 to 1650 m, and a mean annual temperature of -5 to -6°). Orig. art. has: 1 table. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8031988

SOURCE CODE: UR/0000/67/000/000/0040/0044

AUTHOR: Shikharbeyev, B. V.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: The fauna and ecology of Ixodid ticks in Irkutsk oblast

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967. 40-44

TOPIC TAGS: parasite ecology, epidemiologic focus, tick

ABSTRACT: Collection of 18,000 Ixodid ticks in Irkutsk oblast in 1959 to 1965 showed that there are 6 Ixodid tick species in this area: *Ixodes persulcatus*, *Dermacentor nuttalli*, *D. silvarum*, *I. plumbeus*, *Haemaphysalis concinna*, and *I. trianguliceps*, of which the first three are the most widespread. Three zones in which *I. persulcatus* are found include: 1) the southern Sayan mountain area, where ticks are abundant; 2) the area around the upper reaches of the Lena River, with a moderate tick population; and 3) the steppes and forest-steppes in the northern

Card 1/3

ACC NR: AT8031988

regions of the oblast, with a low tick population. In the deciduous-pine forests in the Sayan area, *I. persulcatus* is omnipresent. *I. persulcatus* appears in early April, is most active in late May-early June, and reaches a population of 16 specimens/km. A density of 80 specimens/km is reached along mountain brooks and streams with banks overgrown with bushes. Ticks were most abundant on cows and other farm animals in mid-May. The chief hosts in this area are the northern redbacked vole, the large-toothed redbacked vole, and the shrew (larval hosts), and the Siberian chipmunk, squirrel and hazel hen (adult tick hosts). *I. persulcatus* ticks are found in this area up to 1500-1700 m. In the upper reaches of the Lena River, ticks are distributed in the same manner, but the average density is 6.6 specimens/km. Tick density reaches an unusual high of 25.4 specimens/km around the Bratsk Reservoir in Zalar rayon, due to an unusual increase in the number of hosts. *Dermacentor nuttalli* is most common in the open steppe (sparse vegetation). This species appears in the spring with disappearance of the snow cover (early April). The population of adult ticks in 1964 was 71 specimens/km, and in 1965, 61/km. Hosts of adult *D. nuttalli* are sheep, cows, horses, dogs, hares, and roe deer. The chief host of larvae and nymphs is the long-tailed Siberian suslik, with the striped hamster, redbacked vole, narrow-skulled vole, large-toothed redbacked vole and the striped field

Card 2/3

ACC NR: AT8031988

mouse as less important hosts. Ticks were also found on the hoopoe, starling, and wheatear. *Dermacentor silvarum* has the same distribution as *D. nuttalli*, but is chiefly adapted to the forest-steppe, where its density equals 22 specimens/km, or 11.5 specimens per agricultural animal (cows, horses, sheep). Other hosts of adult ticks include the hazel hen, hares, and elk. Larvae feed mostly on voles and chipmunks. Only 2 specimens of *Haemaphysalis concinna* were found and only a few examples of *Ixodes trianguliceps*. *Ixodes plumbeus* was found for the first time in Tulun and Zalar rayons in the nests of sand martins and Isabelline wheatears, and one tick was found on a long-tailed Siberian suslik. The biology of this tick species is completely unknown at present.

[WA-50, REP NO. 5 1965]

SUB CODE: 06/ SUBM DATE: none

Card 3/3

ACC NR: AP8034754

SOURCE CODE: UR/9099/68/000/010/0625/0626

AUTHOR: Shitova, Ye. M.

ORG: Department of Obstetrics and Gynecology, Therapeutic Faculty/  
Head--Prof. S. S. Dobrotin/, Gor'ky Medical Institute im. S. M. Kirov  
(Kafedra akusherstva i ginekologii lechebnogo fakul'teta Gor'kovskogo  
meditsinskogo instituta)

TITLE: Study of proteins and protein fractions in the blood serum of  
women with toxoplasmosis

SOURCE: Laboratornoye delo, no. 10, 1968, 625-626

TOPIC TAGS: parasitic disease, serum protein, pregnancy, toxoplasmosis

ABSTRACT: Results are reported on a study of blood proteins in 100  
pregnant women with toxoplasmosis. Total proteins were determined by  
refractometry; protein fractions were determined by paper electro-  
phoresis. From 2 to 6 analyses were done on each patient. The average  
level of total proteins in pregnant women with latent toxoplasmosis was  
equal to the lower limits of normal in healthy subjects and identical to  
protein levels in healthy pregnant women. In 42 of 100 pregnant women  
with toxoplasmosis, total proteins in the liver and biliary tracts

Card 1/2

UDC: 616.993.192.1-055.2-07:616.153.96-074

ACC NR: AP8034754

decreased to 5.1 g/%; the albumin-globulin coefficient decreased to 0.58.  
Under the influence of chloridine and sulfadimezin (sulfamethazine)  
therapy, total proteins decreased from 7.5 to 6.4 g/%. The albumin  
level decreased from 45% (3.33 g/%) before treatment to 39.7% (2.54 g/%)  
during therapy. There was a simultaneous increase in globulins, espe-  
cially  $\alpha_2$ -globulins (from 13.4 to 17.1%) and  $\beta$ -globulins (from 13.7 to  
16.7%). There was a decrease in the protein coefficient from 0.83 before  
treatment to 0.6 during drug therapy. Protein fractions returned to  
normal after treatment. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 22Aug66/ ORIG REF: 009

Card 2/2



ACC NR: AP8033605

SOURCE CODE: UR/0016/68/000/009/0137/01

AUTHOR: Shkarin, V. V. (Member of the Tula oblast blood transfusion station)

ORG: Tula Oblast Blood Transfusion Station (Tul'skaya oblastnaya stantsiya perelivaniya krovi)

TITLE: Serological study of blood donors for toxoplasmosis

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 137-141

TOPIC TAGS: toxoplasmosis, serologic test

ABSTRACT: Positive results in the complement fixation reaction with *Toxoplasma* antigen were obtained in the blood of 223 out of 2268 blood donors. In Tula, titers ranged from 1:5 to 1:10. Positive reactions were also observed in 94 out of 1297 unpaid donors. Positive serological reactions were more frequently observed in women (10.6%), and less often in men (7.9%). Women are presumed to have more contact with animals and raw animal products. The number of positive reactions decreased with age. The greatest number of positive reactions were noted

Card 1/2

UDC: 616.993.19-078.7"615.38-012

ACC NR: AP8033605

among medical workers (17.9%) and housewives (11.7%). No great differences in the percentage of positive reactions in the complement fixation test among donors with different blood types was observed. However, the number of positive reactions in people with RH-negative blood was 2 times higher than the number in people with RH-positive blood. The amount of blood given by regular donors apparently was not related to the incidence of toxoplasmosis. The amount of time that donors had been giving blood was apparently not significant either. The rate of positive reactions in donors over 50 was only 5%. Orig. art. has: 4 tables. [WA-50; CBE No. 38] [J<sup>8</sup>]

SUB CODE: 06/ SUBM DATE: 09Sep67/ ORIG REF: 012/ OTH REF: 002

ACC NR: AT80331.

SOURCE CODE: UR/3289/67/046/000/0072/0077

AUTHOR: Sidenko, I. Ye.; Orinshteyn, Z. A.; Goryuk, M. D.

ORG: none

TITLE: The effect of mutagens on *Ustilago zeae*, the agent of maize smut (white blister)

SOURCE: Kishinev. Sel'skokhozyaystvennyy institut. Trudy, no. 46, 1967. Biofizika, vypusk 3 (Biophysics, third edition), 72-77

TOPIC TAGS: mutagen, fungus, plant disease

ABSTRACT: Treatment of *Ustilago zeae* chlamydospores with the mutagens nitrosomethylurea (NMU), nitrosoethylurea (NEU), hydroxylamine, urethane, 5 bromouracil, or diethyl sulfate in definite concentrations and doses increased or decreased the germination capacity of spores, virulence, and intensity of fungal growth in pure culture. Infection of corn plants with chlamydospores treated with NMU in a concentration of 0.1% hardly changed the virulence of spores as compared with controls, while treatment with a 0.01% solution of NMU doubled virulence. However, spores treated with a concentration of diethyl sulfate higher than 1.0% were more virulent. Urethane-treated spores damaged plants

Card 1/2

ACC NR: AT8033129

least of all. Treatment of chlamydospores with 5-bromouracil or hydroxylamine decreased virulence with decrease in the concentration of the mutagen. Increase in the germination capacity of chlamydospores and increase in the intensity of growth of fungal colonies in pure culture caused by mutagens did not always intensify virulence. Orig. art. has: 6 tables. [WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUM DATE: none

Card 2/2

ACC NR: AP8033609

SOURCE CODE: UR/0016/68/000/009/0153/0153

AUTHOR: Sidorenko, G. I.; Pivovarov, Yu. P.; Borovik, E. B.;  
Deriglazov, A. D.; Shelakova, V. V.

ORG: Second Moscow Medical Institute im. M. I. Pirogov (I Moskovskiy  
meditsinskiy institut)

TITLE: Two outbreaks of food poisoning caused by *Cl. perfringens* type A

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9,  
1968, 153

TOPIC TAGS: clostridium, bacterial toxin, poison effect

ABSTRACT: Two outbreaks of food poisoning caused by *Cl. perfringens*  
type A were traced to cold zakuski (appetizers) stored at 30°C. Diarrhea,  
nausea, fever, or a drop in temperature, etc. lasted 12—24 hr in the  
first outbreak (after an incubation period of 8—12 hr) and 10—48 hr  
during the second outbreak. All patients recovered completely. *Cl. per-*  
*fringens* type A was isolated from the feces of all patients and cultured  
on sulfite-polymyxin-neomycin medium. More than half the strains isolated  
during the first outbreak of food poisoning were toxigenic (2—4 Dlm in

Cord 1,2

UDC: 616.981.57-039:616.3-008.1

ACC NR: AP8033609

1 ml of culture), and had temperature-resistant spores. A total of 90%  
of cultures isolated during the second outbreak were toxigenic (10 Dlm  
per ml), and spores withstood heating for 2 hr (as opposed to 30—0 min  
for spores from the first outbreak). [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: 18Mar68

Cord 2/2

ACC NR: AP8033286

SOURCE CODE: 12/0093/68/012/005/0474/0474

AUTHOR: Simkova, A.; Danes, L.

ORG: Research Institute of Epidemiology and Microbiology, Bratislava;  
Military Institute of Hygiene, Epidemiology and Microbiology, Prague,  
Czechoslovakia

TITLE: Virological and clinical observations on chimpanzees exposed to  
Tahyna virus aerosol

SOURCE: Acta virologica, v. 12, no. 5, 1968, 474

TOPIC TAGS: mosquito, experimental animal, chimpanzee, virus disease,  
aerosol

ABSTRACT: The results are reported of an attempt to prove the effective-  
ness of aerosol infection with Tahyna virus in chimpanzees (*Pan troglodytes*). Aerosol was prepared from heparinized undiluted hamster blood  
containing the extraneural variant of the Tahyna virus strain 236 in its  
7th and 8th passages. A male and female chimpanzee, weighing 6.8 and  
6.0 kg respectively, were anesthetized with pentobarbital and exposed  
to the aerosol in doses of 41550 (male) and 36750 (female) intracerebral  
mouse LD<sub>50</sub>. Airborne infection was carried out in a sealed steel chamber

Card 1/2

ACC NR: AP8033286

of a 400-l working capacity with air temperature at 17-19°C, relative  
humidity about 75%, and an air flow through the chamber of 50 l/min.  
For the 2-month period of the experiment, complete blood counts and  
erythrocyte sedimentation rates were determined at 3-7 day intervals;  
and chest x-rays, virus neutralization tests in tissue culture and  
complement-fixation and hemagglutination inhibition tests were done at  
7-day intervals. Neither of the chimpanzees exposed to Tahyna virus  
aerosol manifested any clinical disease or infection. Results of  
physical, hematological and serological examinations revealed no changes  
in comparison with data obtained before exposure to aerosol. No virus  
could be demonstrated in the blood or nasal mucus. It is suggested  
that the upper and lower respiratory tract is not a portal of entry of  
the mosquito-transmitted Tahyna virus infection.

[BA-50; CBE No. 38][XF]

SUB CODE: 06; SUBM DATE: 11/26/68; CTH REF: 004

Card 2/2

Source: <http://www.fishbase.org>. Accessed 03/03/2009.

ORG: Icnse Scientific Research Institute, 100000, Moscow, Russia  
nauchno-issledovatel'skoye institut, ulitsa, 100000, Moscow, Russia  
Scientific Research Institute, ulitsa, 100000, Moscow, Russia  
nauchno-issledovatel'skoye institut, ulitsa, 100000, Moscow, Russia  
(institute)

SOURCE: Tomsk. Nauchno-issledovatel'sk. ts. i. inst. vostochn. sverotok.  
Trudy, v. 16, 1965. Voprosy onkologii, 1965, 11, 1. Immunologii  
(Problemy onkologii, 1965, 11, 1. Immunologii)

ABSTRACT: Nerve tissue was alerted for 10-15 days and 10-15 days in embryo brains was successfully cultivated in vitro. The best nutrient medium for embryonic nerve tissue was found to be 30% Hank's solution and 10% fetal calf serum. The best medium was 30% Hank's solution and 10% fetal calf serum. Human and horse sera gave poor results. On method of preparing chick brain tissue

ACC NR: A750327-11

[WA-50; CB: No. 38][JS]

Card 2.5

ACC NR: AP8033595

SOURCE CODE: UR/0016/68/000/009/0066/0071

AUTHOR: Spotarenko, S. S.; Boletovskiy, V. M.

ORG: Central Institute of Epidemiology (Tsentral'nyy institut epidemiologii)

TITLE: On the method of analyzing the effectiveness of vaccinal preparations

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1968, 66-71

TOPIC TAGS: immunity, vaccination, vaccines

ABSTRACT: Since specific immunization in man is not without hazards, the possibility of error in evaluating its effectiveness should be kept to a minimum. Placebo studies with nonvaccinated subjects, including those in whom vaccination is contraindicated for medical reasons, are necessary to evaluate the true epidemiological effectiveness of a vaccine. Attempts of individual investigators to evaluate the effectiveness of a preparation according to the morbidity index in vaccinated and nonvaccinated subjects when other conditions are unequal may lead to erroneous estimation of the true efficacy. This is illustrated by results obtained by Kheifetz *et al.* in 1966 in a study to determine the efficacy of typhoid

Card 1/2

UDC: 615.371/.372-07.313.13

ACC NR: AP8033595

vaccine. The morbidity index in 1000 control subjects immunized with tetanus toxoid was 1.62, while the morbidity index in 1000 nonvaccinated subjects (including those in whom vaccination was contraindicated) was 3.43. If nonvaccinated subjects (including those in whom vaccination was contraindicated, and were, therefore, more susceptible) had been included in the control group, the coefficient of effectiveness would have been 66 instead of 78.4. However, a decreased coefficient of effectiveness of a preparation may result when subjects not vaccinated because of medical reasons are included in the control group. This is illustrated by the results of studies by Klyachko in 1958 to determine the epidemiological effectiveness of intracutaneous live mumps vaccine, in which kindergarten children not vaccinated for various reasons, including medical contraindication, served as controls. Paradoxical results were obtained by Borovikov and Revenok in 1966 in studies to evaluate the effect of immunization with live (L-4 strain) chorea vaccine on anti-diphtheria immunity at different periods after chorea vaccination when qualitative and quantitative differences were present in the experimental and control groups. Control studies are not necessary only when comparative studies are made of two or more vaccines, and when one of them has already been studied in control conditions. Orig. art. has: 5 tables.

[WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 25Sep68/ ORIG REF: 006/ OTH REF: 006

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Card 2/2

ACC NR: AP8033820

SOURCE CODE: UR/0325/68/000/010/0111/0118

AUTHOR: Sukhareva-Nemakova, N. N.

ORG: Laboratory of Antibiotics, Moscow State University im. M. V. Lomonosov (Laboratoriya antibiotikov Moskovskogo gosudarstvennogo universiteta)

TITLE: Features of the composition of synthetic media for mass cultivation of *Trypanosomidae*.

SOURCE: Nauchnyye doklady vysshey shkoly. Biologicheskiye nauki, no. 10, 1968, 111-118

TOPIC TAGS: culture method, parasite

ABSTRACT: Analysis of data from the literature indicates that culture media for *Trypanosomidae* must contain the components shown in the table. Synthetic media are not used extensively in laboratory research on the physiology and biochemistry of *Trypanosomidae* because of the relatively

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UDC: 576.8.093.1

ACC NR: AP8033820

Table 1

Media Components	Importance of components in life activity	
	"Higher" <i>Trypanosomidae</i>	"Lower" <i>Trypanosomidae</i>
Glucose, fructose or sucrose	Carbon and energy source. stimulates respiration	Importance of components in life activity
Amino acids	At least 17 are necessary. Source of nitrogen, stimulates respiration. Source of carbon when glucose absent	At least 10 are necessary. Source of nitrogen, stimulates respiration. Source of carbon when glucose absent
Hematin	Enters into structure of prosthetic groups of cytochromes a and b	Enters into structure of prosthetic groups of cytochromes a and b Hematin-independent species exist
Purine and pyrimidine bases or nucleotides	Purine and pyrimidine bases. Precursors for synthesis of nucleic acids	Some purine or pyrimidine bases. Precursors for synthesis of nucleic acids
Vitamins of group B	Component of coenzymes of the cells	Component of coenzymes of the cells
Phosphates ( $\text{Na}_2\text{HPO}_4$ , $\text{KH}_2\text{PO}_4$ )	Utilized for synthesis of nucleic acids, phospholipids and other phosphorus-containing components of cells, and as a buffer in the medium	Utilized for synthesis of nucleic acids, phospholipids and other phosphorus-containing components of cells, and as a buffer in the medium
NaCl or NaCl-KCl mixture	Osmotic factor	Osmotic factor
Trace elements		

Card 2/3

ACC NR: AP8033820

low rate of multiplication and accumulation of cells, and because of the significant resistance and deficit of many components in the media.  
Orig. art. has: 3 tables. [WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: 26Dec67/ ORIG REF: 011/ OTH REF: 060

Card 3/3

ACC NR: AT8032541

SOURCE CODE: UR/3407/68/029/000/0071,0075

AUTHOR: Survillo, A. V.

ORG: Institute of Zoology, Academy of Sciences KazSSR (Institut zoologii Akademii nauk KazSSR)

TITLE: On the ecology of wheatear in the southern part of the Zaysan basin

SOURCE: AN Kazakh SSR. Institut zoologii. Trudy, v. 29, 1968.  
Novosti ornitologii Kazakhstana (Ornithological news of Kazakhstan),  
71-75

TOPIC TAGS: biologic ecology, animal colony

ABSTRACT: Data on the ecology of wheatear were collected in 1962--1964, 1966, and 1967 in the semiarid area to the south of Lake Zaysan and in the northern foothills of the Monrak chain. *Oenanthe oenanthe* L. was found in the Kurchum mountains surrounding the northwestern area of the basin. In the southern part of the basin, they were found in areas with sparse plant life, in gullies, on the slopes of the Monrak and Kichkinetay, and in the areas surrounding small villages. Desert wheatear *O. deserti atrogularis* Blyth, which is one of the characteristic

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UDC: 598.8  
- 286 -



ACC NR: AT8032541

species of the southeastern Altai, was also found in the southern area of the basin. Its original home was on the right bank of the Chernyy Irtysh river. *Oenanthe pleschanka* L. was found frequently in the Kurchum mountains and in the Tarbagatay chain; however, the largest flocks were found in the Zaysan basin and on the northern spurs of the Monrak and Kichinetay chains. Rare specimens of Isabelline wheatear *O. isabellina* Temm. were found in the lowlands of the southern Zaysan basin and in the Tarbagatay mountains. In 1967, this species was fairly common in the Kamyshzavod rayon in the wooded area surrounding Lake Zaysan. Nesting habits of each of the above-mentioned species are discussed. Orig. art. has: 1 table. [WA-50; CBE No. 38][XF]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 006

Card 2/2

ACC NR: AP8033821

SOURCE CODE: UR/0439/68/047/010/1514/1525

AUTHOR: Sveshnikova, N. P.

ORG: none

TITLE: Mammals--carriers of leptospirosis in natural foci in various zoogeographical regions

SOURCE: Zoologicheskii zhurnal, v. 47, no. 10, 1968, 1514-1525

TOPIC TAGS: mammal, disease vector, leptospirosis, animal disease, zoogeography epizootiology

ABSTRACT: Literature reports on the isolation and classification of *Leptospira* from wild animals (mammals) of the palearctic, nearctic, eastern and Australian regions were examined to determine the basic *Leptospira* vectors for each broad region. This is broken down into orders on the basis of numbers of cultures isolated (see Table 1) which are common to several regions. Each region is then classified as to the

ACC NR: AP8033821

Table 1. Basic *Leptospira* carriers in different faunal provinces

Province	Order of mammals	Species	No. of animals studied	No. of cultures of all serotypes isolated	Serological groups		
					Name	% *	% **
Palearctic	Rodents	<i>Microtus arvalis</i>	12744	400	Grippotyphosa	86,2	50,1
		<i>M. oeconomus</i>	4630	198	"	83,8	24,1
		<i>Apodemus agrarius</i>	6976	177	Pomona	77,3	55,3
		<i>A. speciosus</i>	1649	135	Autumnalis	100,0	86,5
		<i>Microtus minutus</i>	1554	180	Bataviae	80,5	78,3
		<i>Mus musculus</i>	11427	262	Hebdomadis	80,9	50,9
		<i>Rattus norvegicus</i>		49	Icterohaemorrhagiae	81,6	71,4
	Insectivora	<i>Erinaceus europaeus</i>	1064	217	Australis	87,2	82,0
		<i>Sorex araneus</i>	4116	128	Javanica	86,7	73,5
Nearctic	Marsupials	<i>Didelphis marsupialis</i>	1283	134	Ballum	60,4	29,3
	Rodents	<i>Mus musculus</i>	1097	92	Ballum	97,8	32,6
	Carnivora	<i>Mephitis mephitis</i>	1276	491	Pomona	39,3	85,4
		<i>M. mephitis</i>			Hyos	28,7	76,7
		<i>M. mephitis</i>			Canicola	8,1	100,0

\* % of all serogroups isolated from a given species

\*\* % of the total culture serogroups isolated from all species in a province

\*\*\* Number of strains

Cord 2/7

ACC NR: AP8033821

Table 1. (Cont.)

Eastern	Rodents	<i>Rattus rattus argentiventer</i>	959	215	Javanica	97,6	83,4
		<i>R. norvegicus</i>	737	157	Bataviae	75,8	86,2
Australasian	Marsupials	<i>Isodon macrourus</i>	421	14	Hebdomadis	(5) ***	—
		<i>Perameles nasuta</i>	82	8	Hebdomadis	(6) ***	—
	Rodents	<i>Rattus s. conatus</i>	153	39	Australis	74,3	72,5
		<i>R. rattus</i>	475	14	Pyrogenes	—	22,6

Table 2. Serogroups of *Leptospira* carried by vectors in different faunal provinces

Province	Basic vector	Serotype
Palearctic	<i>Microtus arvalis</i> , <i>M. oeconomus</i>	Grippotyphosa
	<i>M. oeconomus</i> , <i>M. fortis</i>	Saxkoebing
	<i>Mus musculus</i>	Sejroe

Cord 3/7

ACC NR: AP8033821

Table 2. (Cont.)

Nearctic	Apodemus agrarius	Pomona mozdok
	Micromys minutus	Bataviae
	Erinaceus europeus	Bratislava seu, erinaceus europeus
	Sorex araneus	Sorex jalna, pol
	Didelphis marsupialis	Ballum ballum
	Mus musculus	" "
	Mephitis mephitis	Pomona pomona, hyos, hyos, canicola
	Rattus r. argentiventer	Javanica
	R. norvegicus	Bataviae
	Isodon macrourus	Kremastos, meda-nensis
Eastern	Perameles nasuta	ditto
	P. nasuta	Peramelis
	Rattus s. conatus	Australis
	R. rattus	Zanoni
Australian		

Cord 4/7

ACC NR: AP8033821

Table 3. Mammals--carriers of *Leptosira* serotypes seldom encountered in a given province

Province	Species	Serogroup	Serotype	No. of cultures
Palearctic	Erinaceus europeus	Canicola	Canicola	29
	E. europeus	Hebdomadis	Mini szwajizak	9
	E. europeus	"	Polonica	1
	E. europeus	Australis	Australis	
	E. auritus Gmelin	Autumnalis	Erinacei — auriti	19
	Mus musculus	Ballum	Ballum ballum	1
	Apodemus sylvaticus	"	Ballum arborea	1
	A. sylvaticus	Australis	Lora	1
	A. flavicollis Melch.	"	Jalna	3
	Arvicola terrestris L.	Autumnalis	Erinacei — auriti	1
Nearctic	A. terrestris L.	Hebdomadis	Mini AB	7
	Didelphis marsupialis	Icterohaemorrhagiae	Icterohaemorrhagiae	1
	D. marsupialis	Autumnalis	Autumnalis	1
	Dasypus novemcinctus Peters	"	Louisiana	1
	Microtus pennsylvanicus	Grippytyphosa	Grippytyphosa	7

Cord 5/7

ACC NR: AP8033821

Table 3. (Cont.)

Eastern	Myopotamus coypus	Autumnalis	Orleans	1
	M. coypus	Pyrogenes	Zanoni myocastoris	1
	M. coypus	Batavise	Paidjan	6
	Procyon lotor L.	Icterohaemorrhagiae	Incompleta	2
	F. lotor	Australis	Australis	2
	F. lotor	Hebdomadis	Mini georgia	15
	R. norvegicus	Pyrogenes	Manilae	4
	R.r. argentiventer	"	Pyrogenes	1
	"	Javanica	Celledoni	1
	R. eximius Peale	Canicola	Canicola	2
	"	"	Benjamin	1
	R. rajah	"	Schullneri	1
	Rattus mülleri	Australis	Australis	3
	R. mülleri	Grippytyphosa	Grippytyphosa	2
	R. mülleri	Hebdomadis	Wolffii	2
	R. whiteheadi	Icterohaemorrhagiae	Mancarso	1
	R. boversi Anderson	Autumnalis	Djasiman	2
	Bandicota bengalensis Gray Hardwicke	"	Autumnalis AB	5
	Paradoxurus hermaphroditus Pal.	Autumnalis	Sentot	1

Card 6/7

ACC NR: AP8033821

Table 3. (Cont.)

Australian	Isodon macrourus	Javanica	Celledoni	2
	I. macrourus	Canicola	Broomi	2
	R.s. conatus	Grippytyphosa	Grippytyphosa	7
	Melomys lutillus Thomas	Canicola	Bindjei	1

genus and species of the carriers and serogroups and serotypes of the agent carried (see Tables 2 and 3). Orig. art. has: 3 tables.  
[WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 7/7

ACC NR: AP8032555

SOURCE CODE: UR/0248/68/000/010/0024/0034

AUTHOR: Svetlov, V. A.

ORG: Institute of Cardiac and Thoracic Surgery im. A. N. Bakulev,  
AMN SSSR, Moscow (Institut serdechno-sosudistoy khirurgii AMN SSSR)

TITLE: Dynamics of tubocurarine concentration in the blood at the time  
of total curarization

SOURCE: AMN SSSR. Vestnik, no. 10, 1968, 24-34

TOPIC TAGS: neurophysiology, CNS physiology, drug dose dynamics

ABSTRACT: This article describes the penetration of tubocurarine into the blood and the events accompanying its elimination from the body. Curarized patients anesthetized for an operation were given varying doses of the drug, with the clinical and neuromuscular conductivity state at the time of curarization being considered. Cardiac output and venous behavior as well as neuromuscular conduction were measured. Blood plasma was taken from the patients during the operation and from 30 patients who had previously undergone surgery. All operations were completed under combined narcosis with hexenal (0.3—0.5 g dry weight) and/or listenone (2—3 mg/kg) which were given in the gas-narcotic mixture  $N_2O_2 + O_2 + \text{ether}$  (or flurorthane). Myorelaxation appeared after

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UDC: 615.216.5.033.1

ACC NR: AP8032555

one injection of 0.3—0.4 or 0.5—0.6 mg/kg tubocurarine, depending on the gas mixture. Continuous observations of the patients were made and samples were taken at 5-, 15-, and 45-min intervals. Patients were divided into two groups: in the group which had received 0.3—0.4 mg/kg of the drug, the highest tubocurarine level was observed 5 min after total curarization; and in the second group, this level was observed after 10 min. During the following two hours, the curarizing effect of the preparation diminished in three phases. The first required 15 min, the second ended at the 40th min, and by the end of the 3rd hr curarization was at a minimum (0.01 g/ml per min). In general, the absolute concentration of tubocurarine in the blood depends on the initial dose used; it was highest in the second group at the end of the observation time. Orig. art. has: 6 tables. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: 22Jan68

Cord 2/2

ACC NR: AT8032697

SOURCE CODE: UR/3404/65/016/000/0029/0040

AUTHOR: Terent'yev, V. F.; Nesterov, V. S.

ORG: Department of Nervous Diseases and Microbiology, Tomsk Medical Institute (Kafedra nervnykh bolezney i mikrobiologii Tomskogo meditsinskogo instituta)

TITLE: Clinical and immunological parallels in tickborne encephalitis patients

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 29-40

TOPIC TAGS: human ailment, tickborne encephalitis, clinical medicine, immunology

ABSTRACT: Immunological reactions were studied by use of biological neutralization, complement fixation and hemagglutination inhibition reactions in serum samples from patients in the initial and acute stages of tickborne encephalitis. Examination was made of specimens of patients suffering from meningeal, latent, diphasic symptoms, and CNS lesions. The most active antihemagglutinin, virus neutralizing and

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ACC NR: AT8032697

complement-fixing antibodies were observed in the latent form when serological reaction rates increase for 4-5 weeks and then decline. In meningeal and focal lesion forms, prolonged titer rise is unusual. Reaction results in the case of diphasic TBE are unstable and unreliable. In latent TBE, virus neutralizing antibodies can be found as long as six months after onset of the illness. Orig. art. has: 4 figures.

[MA-50; CBE No. 53][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 010

Cord 2/2

ACC NR: AT8032708

SOURCE CODE: UR/3404/65/016/000/0162/0166

AUTHOR: Tikhonova, L. Ya.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: A natural focus of toxoplasmosis in Tomsk oblast

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy. v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 162-166

TOPIC TAGS: toxoplasmosis, epidemiologic focus, epidemiology

ABSTRACT: During study of the natural focus of toxoplasmosis in Tomsk oblast in 1962, *Toxoplasma* were isolated from four rodent species (common red-backed vole, northern red-backed vole, large-toothed red-backed vole, and the root vole), and seven species of wild birds (hazel hen, jay, bunting, tit, goldfinch, woodpecker, and ring-ouzel). A definite connection between human cases of toxoplasmosis and domestic animals (dogs, cats, and cattle) was established. Complement-fixing antibodies were found in the blood of 28 out of 500 domestic and agricultural animals

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ACC NR: AT8032708

studied. Red-backed voles are considered an important reservoir of toxoplasmosis in this focus, where they are the predominant small mammal species. More study of the specific role of various wild animals and birds in this focus is needed. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 003

ACC NR: AT8032696

SOURCE CODE: UR/3404/65/016/700/0023/0028

AUTHOR: Trukhmanov, B. G.; Stetkevich, A. A.; Shubin, N. V.;  
Terent'yev, V. F.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok); Tomsk Medical Institute (Tomskiy meditsinskiy institut)

TITLE: Comparative characteristics of the specific therapeutic effect and nonspecific reactivity of antiencephalitic serum preparations

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 23-28

TOPIC TAGS: encephalitis, gamma globulin, disease therapeutics

ABSTRACT: Study of the effectiveness of antiencephalitic serum preparations in 718 cases of tickborne encephalitis in Tomsk in 1954-1962 showed the pronounced, specific therapeutic effect of these preparations. The incidence of serum sickness ranged from 3.3-10% for serum Diaferm-3 to 3.4-5.8% for  $\gamma$ -globulin. With serum therapy, there were no fatal cases, whereas among untreated controls the fatality rate was 2.7%. The therapeutic effect of native serum was somewhat more pronounced than that

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ACC NR: AT8032696

of  $\gamma$ -globulin or Diaferm serum. Nonspecific reactivity of native serum was highest (2-11%). Specific serotherapy of tickborne encephalitis with preparations of the Diaferm or  $\gamma$ -globulin type is sufficiently well-founded and should be expanded. It was concluded that the existence of a certain number of nonspecific reactions to the use of serum preparations is not sufficient reason to limit their therapeutic use, but methods of reducing their reactivity and standardizing the specific activity and allergic side effects must be found.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 013/ OTH REF: 001



ACC NR: AP8034064

SOURCE CODE: UR/0218/68/033/005/0916/0921

AUTHOR: Tsanev, N.

ORG: Higher Medical Institute, Sofia (Vysshii meditsinskiy institut)

TITLE: Action kinetics of the enzyme decapsulating *Bacillus anthracis*

SOURCE: Biokhimiya. v. 33, no. 5, 1968, 916-921

TOPIC TAGS: anthrax, enzyme kinetics, capsular antigen

ABSTRACT: Liver extracts of many animal species and of humans decapsulate *Bac. anthracis*. One of the most active extracts comes from the domestic duck (*Anas domestica*), and a special decapsulating enzyme was sought in duck liver extracts. Partial purification of the liver enzyme was effected through means described in the text. The decapsulation of *Bac. anthracis* was observed visually by means of a fluorescent

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UDC: 577.15.021

ACC NR: AP8034064

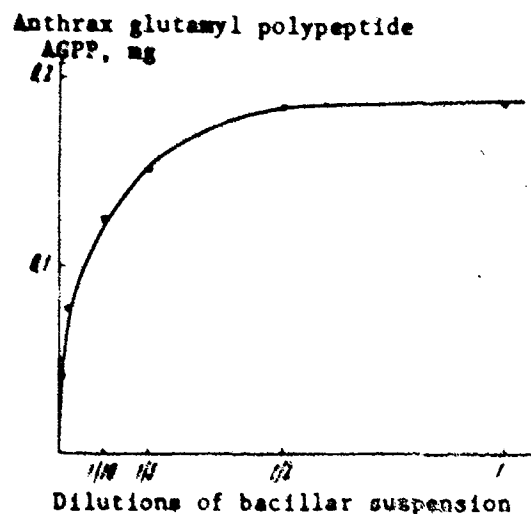


Fig. 1. Relation of reaction rate to substrate concentration dilutions correspond to a bacillar suspension with an optical density of 2.10 at 530 mμ

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ACC NR: AP8034064

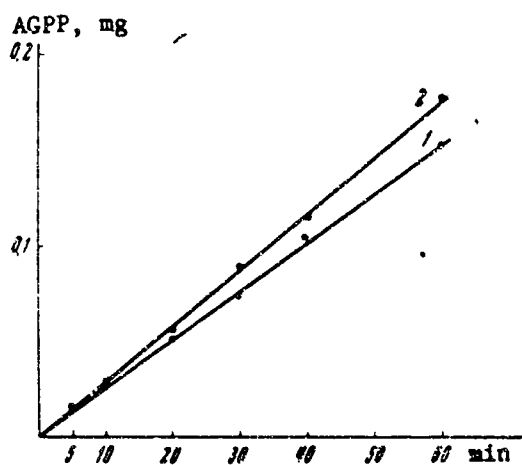


Fig. 2. Relationship between release of AGPP and reaction time unit dilution of 2.10 at 530 mμ

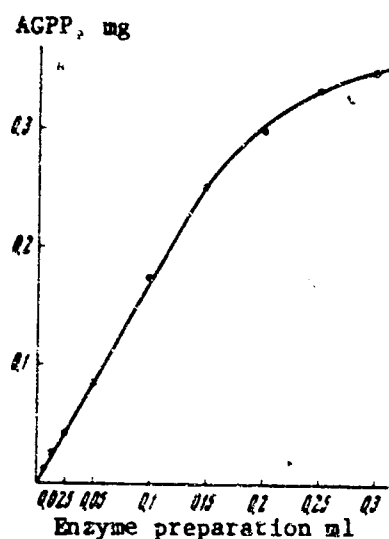


Fig. 3. Relationship between enzyme concentration and release of AGPP

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ACC NR: AP8034064

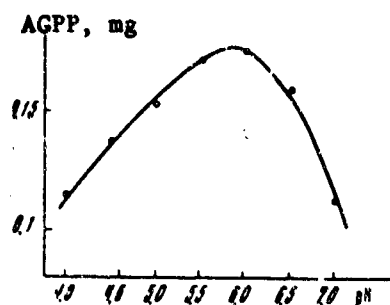


Fig. 4. Effect of pH on decapsulating enzyme

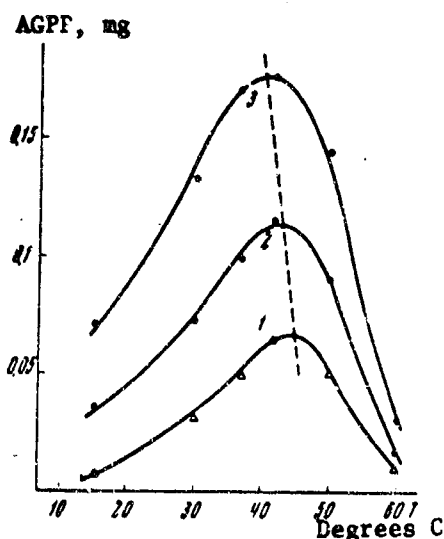


Fig. 5. Effect of temperature on decapsulating enzyme activity

Incubation time in min: 1 - 15;  
2 - 30; 3 - 60

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ACC NR: AP8034064

microscopy method. Data on the decapsulating enzyme preparation and its reaction kinetics are shown in Figures 1—5. Orig. art. has: 5 figures.  
[WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: 31Dec67/ ORIG REF: 002/ OTH REF: 011

Card 5/5

ACC NR: AT8032528

SOURCE CODE: UR/3410/67/098/000/0189/0197

AUTHOR: Tsarev, S. G. (Member of laboratories no. 10 and 11); Kolov, A. O. (Member of laboratories no. 10 and 11); Salakhova, R. S. (Member of laboratories no. 10 and 11); Pavlova, O. V. (Member of laboratories no. 10 and 11); Novoshinov, G. P. (Senior research associate of laboratory no. 10)

ORG: Laboratory No. 11 /Head--Prof. V. S. Abranov/, Laboratory No. 10 /Head--Senior scientific coworker G. P. Novoshinov/, Kazan Veterinary Institute im. N. E. Bauman (Laboratoriya No. 11 i Laboratoriya No. 10 Kazanskogo veterinarnogo instituta)

TITLE: Effects of trichlorometaphos, trolene, thiophos and chloroethylchlorophos on the animal body

SOURCE: Kazan. Gosudarstvennyy veterinarnyy institut. Uchenyye zapiski, v. 98, 1967, 189-197

TOPIC TAGS: insecticide poisoning, poison effect / (U) chlorophos insecticide

ABSTRACT: The effects of trichlorometaphos (25—100 mg/kg), trolene (25—200 mg/kg), methylethylthiophos (1,3,5 mg/kg), chloroethylchlorophos (10—100 mg/kg) and chlorophos (10—30 mg/kg) on adult rabbits,

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ACC NR: AT8032528

cattle and 12—20-month-old pigs were determined. The organophosphorus compounds trichlorometaphos and trolene (50 mg/kg), methylethylthiophos (1—3 mg/kg), and chlorophos (50—80 mg/kg) were not toxic to animals in single doses. However, these doses did produce morphological and biochemical changes in the blood; changes in the organs were of a minor and transient nature. EKG's of the animals tested were noticeably changed. These changes reached a maximum from 30 to 48 hr after injection. The degree of affectation depended on the dose of compound. Large doses produced tachycardia, giving way shortly to bradycardia in the first group (those animals receiving chlorophos and methylethylthiophos), while in the second group (those receiving chloroethylchlorophos, trolene and trichlorometaphos) tachycardia lasted 24 hr. [WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 003

Card 2/2

ACC NR: AT8031916

SOURCE CODE: UR/3399/65/000/061/0212/0218

AUTHOR: Turskaya, L. A. (Candidate of medical sciences)

ORG: Department of Public Hygiene/Head—Prof. S. A. Pul'kis/ (Kafedra kommunal'noy gigieny)

TITLE: Sanitary protection of the soil in some cities of western Siberia

SOURCE: Omsk. Meditsinskiy institut. Nauchnyye trudy, no. 61. Gigiyena vodoyemov, vodoshabzheniya, atmosfernogo vozdukha i planirovki naselen'nykh mest (Hygiene of reservoirs, water supply, air, and planning of populated places). Omsk, 1965, 212-218

TOPIC TAGS: soil bacteriology, public health, parasitic disease, dysentery

ABSTRACT: Preliminary results are reported on a study of sanitary conditions in the western Siberian cities of Novosibirsk, Omsk, Tomsk, and Barnaul. Canalization, which prevents soil pollution in populated areas, has not kept pace with developments in other branches of municipal welfare. All the above-mentioned cities except Tomsk have a "Plan for Sanitary Protection" worked out by the Republic Institute for the Planning of Municipal Construction; however, these plans have not been executed

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ACC NR: AT8031916

and are not outmoded. Lack of adequate motor transportation is noted as one of the chief reasons for failure to carry out the recommendations of the planning commission. Public health is adversely affected by the inadequate sanitary conditions. Thus, ascariasis was detected in 14.2%, and trichuriasis in 2.2% of the population of Barnaul. There was a 1.8% increase in the incidence of ascariasis in 1962 over 1961. Dysentery accounted for 49.8% of all morbidity in Barnaul between July and September, 1962; dysentery affected 58.6% of the population in Tomsk for the same period. The high incidence is directly related to transmission by flies and to soil pollution. It was determined that most foci originated in areas of poorly constructed buildings (in the Zapadnyy settlement of Barnaul and "Kamenka" in Novosibirsk). The importance of protecting the soil from pollution by industrial pollutants is stressed.

[WA-50; CBE No. 38] [XF]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 005

Card 2/2

ACC NR: AT8032009

SOURCE CODE: UR/C000/67/000/000/0145/0149

AUTHOR: Valuyeva, V. N.; Chel'tsova, I. V.; Kirenskaya, N. N.; Shchamel', Ye. I.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: The effect of the degree of dilution of the protein in antitetanus sera before the third stage of purification by the Diaferm-3 method on the antitoxin yield and stability of the titer

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 145-146

TOPIC TAGS: tetanus, antitoxin

ABSTRACT: Diluting antitetanus serum with water (before the third stage of purification by the Diaferm-3 method) to a concentration of 10% protein in the purified preparation increased the volume of the series in IU by 5-50% as compared with sera containing 15% protein. Purification of

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ACC NR: AT8032009

antitoxic horse serum by the usual method is sometimes accompanied by as much as 70% loss of antitoxin. The protein concentration in dialysates of antitetanus serum purified industrially for the first two stages was determined by refractometry. A 10% protein concentration does not increase the lability of antitoxin titers. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8031980

SOURCE CODE: UR/0000/67/000/000/0008/0012

AUTHOR: Vasenin, A. A.; Ryashchenko, S. V.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Topographical-epidemiological zoning of Irkutsk oblast with respect to tickborne encephalitis

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 8-12

TOPIC TAGS: encephalitis, medical geography

ABSTRACT: Irkutsk oblast was divided into light topographical-epidemiological regions for tickborne encephalitis on the basis of a nine-year study of encephalitis cases and other factors such as type of topography, degree of infection of population, type of agriculture in the territory, population density, etc. These regions are described as follows. (1.) The Sayan-Khamar-Daban mountain-taiga region (a relatively unexploited area) contains weak natural foci of tickborne encephalitis. The population density is less than 1 person/km<sup>2</sup> and the

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ACC NR: AT8031980

settlements consist of winter lodges, geologists' bases, etc. 2. The Sayan-taiga logging region contains intense natural foci of tickborne encephalitis. The population density is approximately 1 person/km<sup>2</sup> and the settlements are chiefly forestry farms and lumber camps. Approximately 80—85% of the adults are in contact with ticks, and from 20 to 40% of forest workers are infected with tickborne encephalitis. 3. The agricultural region at the boundary of the taiga and forest-steppe zones contains moderate natural foci of tickborne encephalitis. The population density is 5—10 people/km<sup>2</sup> and agricultural settlements predominate. Encephalitis virus was isolated from a *D. silvarum* tick in this area. About 30—50% of the population is in contact with ticks and 20—25% are infected. 4. The Ol'khon-Angara forest-steppe agricultural region contains weak natural foci of tickborne encephalitis. The population density is 20—30 people/km<sup>2</sup> and the incidence of infection is 2—3%. 5. The Angara-Udinsk region contains weak natural foci in a certain of mixed forests and agricultural areas. The population density is greater than 1 person/km<sup>2</sup>. Tickborne encephalitis has not been recorded here, in spite of the huge influx of workers for building of the Bratsk hydroelectric station (although 6—10% of inhabitants had positive complement-fixation tests). 6. The upper Lena taiga zone contains intense natural foci of tickborne encephalitis in an area with agriculture and a developing forest industry. The population density is 1—5 people/km<sup>2</sup>. Seven

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ACC NR: AT8031980

cases of tickborne encephalitis per 10,000 have been recorded here in the last 5 yr. 7. The northern deciduous-pine taiga (a relatively unexploited area) contains weak natural foci of tickborne encephalitis. The population density is less than 1 person/km<sup>2</sup> and 0.4 cases of encephalitis per 10,000 population have been recorded in the last 5 yr. 8. The Vitim-Patom mountain-taiga zone (also a relatively unexploited area) contains the prerequisites for a tickborne encephalitis focus. Approximately 5—7% of the population is in contact with ticks and two cases of tickborne encephalitis have been recorded.

[MA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Cord 3/3

ACC NR: AT8031979

SOURCE CODE: UR/0000/67/000/000/0003/0007

AUTHOR: Vasenin, A. A.; Ryashchenko, S. V.

ORG: Irkutsk Scientific Research Institute of Epidemiology and Microbiology (Irkutskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii)

TITLE: Characteristics of natural foci of tickborne encephalitis in Irkutsk oblast

SOURCE: Irkutsk. Nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii. Materialy nauchnoy konferentsii. Irkutsk, Vostochno-Sibirskoye knizhnoye izd-vo, 1967, 3-7

TOPIC TAGS: medical geography, parasite ecology, encephalitis, tick, epidemiologic focus

ABSTRACT: Characteristics of natural foci of tickborne encephalitis in Irkutsk oblast are shown in Table 1. A definite connection between the

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ACC NR: AT8031979

Table 1

Indices of the strength of natural tickborne encephalitis foci	High	Average	Low
Density of <i>Ixodes persulcatus</i> ticks/km of route (flag method of collection), specimens	15—20	8—12	1—5
Degree of infestation of farm animals from local herds per season <sup>1</sup> , %	20—40	10—15	2—5
Density of virus-infected ticks/km of route, specimens	0.12—0.17	—	—

<sup>1</sup> Degree of infestation was determined by the complement-fixation test.

strength of the focus and the climate and topography was established. In the east Sayan mountain-taiga area (altitude 2000 m), located in the south and southeast parts of Irkutsk oblast, *I. persulcatus* ticks are found up to 1300 m in cedar-deciduous grassy forests. Ticks are relatively rare here, and little is known about the distribution of encephalitis virus. The Sayan foothill-taiga consists of grassy-mossy

Co 2/4



ACC NR: AT8031979

deciduous-pine-spruce-forests with an average density of *I. persulcatus* of 10—15 specimens/km. Tickborne encephalitis virus has been isolated from root voles, northern redbacked voles, Siberian chipmunks, and northern birch mice, all of which are important preimaginal tick hosts. Virus antibodies have also been found in the blood of 46 bird species and 10 mammalian species. In the northwest part of this area, on the taiga—forest-steppe boundary, *Dermacentor silvarum* ticks are found in addition to *I. persulcatus*, both virus-infested. Agricultural animals are significant hosts of adult ticks here (10—20% infested in the summer). Two types of geographic zones in the upper reaches of the Lena-River natural focus of tickborne encephalitis are the deciduous-cedar taiga zone (above 800—900 m), characterized by a very low incidence of *I. persulcatus* (5—9 specimens/km), and a narrow zone of forest-steppe around Kudina containing *D. silvarum* and *I. persulcatus* in abundance. In virgin deciduous-grassy forests the density of *I. persulcatus* is about 6—8 specimens/km, and 10—12 specimens/km in secondary sparse deciduous-brush forests near animal pastures. Hosts of preimaginal ticks in the first zone include striped field mice, birch mice, and shrews. In the central forest-steppe part of Irkutsk oblast, *Dermacentor muttalli* and *D. silvarum* ticks dominate, although there are a few pockets of *I. persulcatus* with a density of up to 24 specimens/km. The northern part of Irkutsk oblast in the Vitim River

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ACC NR: AT8031979

Valley is a potential encephalitis focus because cattle are pastured around settlements near grassy mossy deciduous-spruce forests, where the present density *I. persulcatus* is 1—1.5 specimens/km.

[WA-50; CBE No. 38][JS]

SUB CODE: 06/ SUBM DATE: none

Cord 4/4

ACC NR: AT8032715

SOURCE CODE: UR/3404/65/016/000/0228/0233

AUTHOR: Vasil'yev, N. V.; Garganeyev, G. P.; Vasil'yeva, O. A.

ORG: Tomsk Medical Institute (Tomskiy meditsinskiy institut); Scientific Research Institute at Tomsk Polytechnic Institute (Nauchnoissledovatel'skiy institut pri Tomskom politekhnicheskom institute); Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchnoissledovatel'skiy institut vaktsin i syvorotok)

TITLE: Effect of certain physical factors on immunogenesis. Report two. Effect of magnetic field and ionizing radiation on vaccinal immunity in TBE

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 228-233

TOPIC TAGS: encephalitis vaccine, tickborne encephalitis, immunogenesis, magnetic field, ionizing radiation biologic effect, antigen antibody reaction

ABSTRACT: Subjecting white mice infected with TBE virus to A-C and D-C magnetic fields inhibited viral antibody production and immunity to TBE.

Card 1/2

ACC NR: AT8032715

Similar results were obtained when mice were exposed to ionizing radiation, with the greatest inhibition of immunogenesis occurring when exposures to ionizing radiation occurred soon after infection. The depression of immunogenesis produced by ionizing radiation is greater than that produced by magnetic fields. Orig. art. has: 2 tables. [UA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002

ACC NR: AT8032713

SOURCE CODE: UR/2404/65/016/000/0217/0221

AUTHOR: Vasil'yev, N. V.; Shtenberg, I. B.; Biychaninova, A. L.

ORG: Department of Microbiology, Tomsk Medical Institute (Kafedra mikrobiologii Tomskogo meditsinskogo instituta)

TITLE: Role of redox processes in the formation of acquired specific immunity. Report 1. The effect of some carbohydrate metabolism inhibitors on the formation of heterophyle hemagglutinins

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 217-221

TOPIC TAGS: immunity, immunology, antigen, carbohydrate metabolism glycolysis

ABSTRACT: Heterophylic hemagglutinin production in white mice is inhibited by  $\alpha$ -dinitrophenols and glycolysis inhibitors such as malonic

Card 1/2

ACC NR: AT8032713

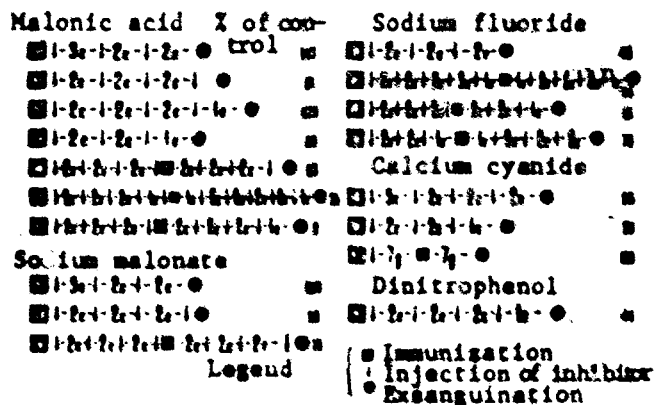


Fig. 1. Effect of some inhibitors on hemagglutinin production in mice

acid, sodium malonate, sodium fluoride, and  $\text{CaCN}_2$ . The effect of these inhibitors is shown in Figure 1. Orig. art. has: 1 figure.

[WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004

Card 2/2

ACC NR: AT8032717

SOURCE CODE: UR/3404/65/016/000/0239/0246

AUTHOR: Vasil'yeva, O. A.; Fedorov, Yu. V.; Vasil'yev, N. V.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok); Tomsk Medical Institute (Tomskiy meditsinskiy institut)

TITLE: Immunological parallels in animals immunized with live and killed tickborne encephalitis virus

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 239-246

TOPIC TAGS: encephalitis, encephalitis vaccine

ABSTRACT: Immunization of guinea pigs with live and killed tickborne encephalitis virus produced a regular increase in the titer of serum antibodies, although extracts from organs with much mesenchyme contained more active antibodies. Guinea pigs were inoculated with live encephalitis virus (consisting of increasing doses of a 10% suspension of mouse brains infected with the Sophian strain) or with a formalinized vaccine. All antigens were injected subcutaneously in 5 doses. Extracts from internal organs possessed considerable anticomplement properties and

Card 1/2

ACC NR: AT8032717

contained hemagglutination inhibitors. Virus-neutralizing antibodies appeared in internal organs (lymph nodes, liver, and spleen), in high titer 10-20 days earlier than in serum. Antibodies appeared more quickly in animals immunized with live virus. Injection of viral antigen considerably altered the protein composition of the blood, and changes were much more pronounced in animals immunized with live virus. Changes in the blood of immunized animals consisted of an increase in the content of total serum proteins, which was more pronounced for animals immunized with live virus. Hyperimmunization of guinea pigs increased the number of immature plasma cells in the spleen and in some lymph nodes, and increased the number of transitional cells (according to Fahraeus). Experimental data showed the important role of lymph nodes and spleen in formation of antiviral immunity. Orig. art. has: 3 figures. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002

Card 2/2

ACC NR: AT8032729

SOURCE CODE: UR/3404/65/016/000/0305/0307

AUTHOR: Vidilina, R. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Strains of tickborne spring-summer encephalitis virus used in the production of antiencephalitic preparations

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 305-307

TOPIC TAGS: encephalitis, tick

ABSTRACT: Strains of tickborne spring-summer encephalitis differed in incubation periods and in some clinical symptoms. Infection of mice with the Sophian strain produced disease in 90—95% of animals on the fourth day of incubation. Strains used in serum production (Ural'skiy, Alma-Atinskiy, 256 and DV) infected 70—80% of animals with an incubation period of 4—5 days. The Absettarov strain had an incubation period of five days and the Khabarovskiy-17 strain, 5—6 days. Strain DV was very toxic. Two forms of tickborne encephalitis were noted in young white mice

Cord 1/2

ACC NR: AT8032729

infected intracerebrally in a dilution of  $10^{-2}$  and a dose of 0.03 ml or intraperitoneally in a dose of 0.25 ml, a meningo-encephalitic form and a paralytic form. The paralytic form of encephalitis predominated in animals infected with Sophian and DV strains. The paralytic form was not noted in animals infected with Khabarovskiy-17. A pronounced meningo-encephalitic syndrome was observed in animals infected with Absettarov strain, which is characterized by greater peripheral activity. Differences in virus titer (from  $10^{-7}$ — $10^{-9}$  lg LD<sub>50</sub> to  $10^{-5}$  to  $10^{-6}$  lg LD<sub>50</sub>) demonstrated the lack of homogeneity of the strains. Biological activity of all viral strains was reduced by 1—2 lg during lyophilization. Lyophilized virus was kept at -20°C for 1—5 yr. During the storage period, changes in completely active virus after 5 yr of storage, while in others activity was sharply reduced after a year of storage.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

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Cord 2/2

ACC NR: AP8034808

SOURCE CODE: UR/0219/68/066/010/0054/0057

AUTHOR: Vysotskaya, N. B.; Sharov, P. A.; Shugina, T. M.

ORG: Laboratory of Neuropharmacology /Head--Active member AMN SSSR  
V. V. Zakusov/, Institute of Pharmacology and Chemotherapy. AMN SSSR,  
Moscow (Laboratoriya farmakologii nervnoy sistemy Instituta farmakologii  
i khimioterapii AMN SSSR)

TITLE: Significance of noradrenalin in the action mechanism of psychotropic drugs

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 66,  
no. 10, 1968, 54-57

TOPIC TAGS: noradrenalin, psychotropic drug effect, psychopharmacologic  
drug effect, psychotropic compound

ABSTRACT: The psychotropic agents phenamine, pyridrol, reserpine and  
triphthazine were given to adult white rats to determine their effect  
on the noradrenaline content in the brain stem. As motor activity  
increased under the influence of phenamine and pyridrol, the nor-  
adrenalin titer decreased. As drug doses increased, the noradrenaline

Card 1/5

UDC: 615.214.015.4:612.822.1.18

ACC NR: AP8034808

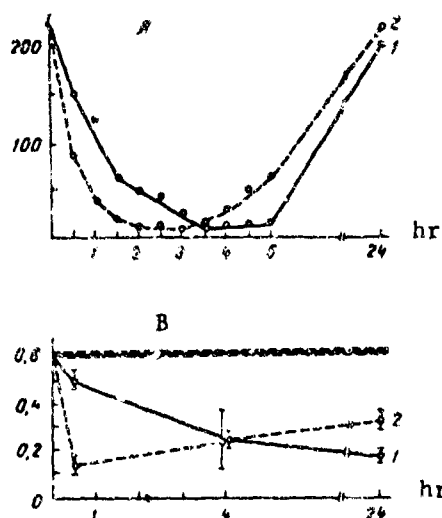


Fig. 1. Effect of reserpine (1) triphthazine (2) on motor activity (A) and noradrenaline content (B) in the brain stem of the white rat

Abscissa - time in hr; ordinate A - motor activity; ordinate B - noradrenaline content (in µg/g). Vertical line - confidence limits

Card 2/5

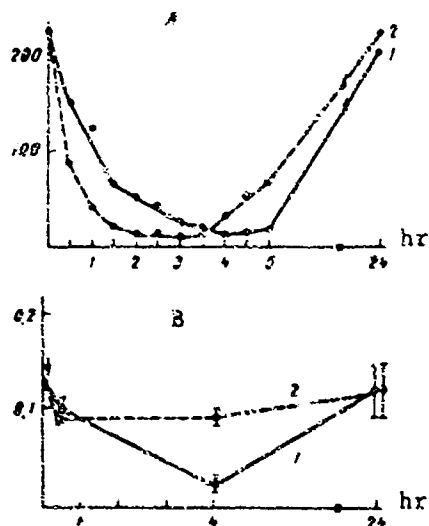


Fig. 2. Effect of reserpine (1) and triphthazine (2) on motor activity (A) in the brain stem of the white rat 24 hr after sequential administration of another dose of reserpine

Abcissa - time in hr; ordinate A - motor activity; ordinate B - noradrenaline content (in  $\mu\text{g/g}$ ). Vertical line - confidence limits; arrow - administration time

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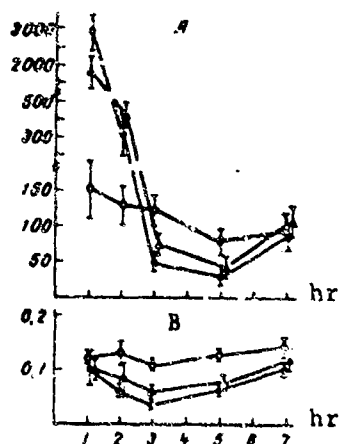


Fig. 3. Effects of phenamine and pyridrol on motor activity (A) and noradrenaline content in the brain stem of white rats after long-term administration of reserpine

Abcissa - time in hr; ordinate A - motor activity; ordinate B - noradrenaline content (in  $\mu\text{g/g}$ ). Vertical line - confidence limits

titer dropped further. The sedative effect appearing after administration of the tranquilizers reserpine and triphthazine coincided in time and effect with the decrease in the noradrenaline titer. Normal function in all animals returned before the normal amine content in the brain stem. Continued administration of reserpine showed that the psychostimulatory and depressant effects of the drugs coincided with

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ACC NR: AP8034808

changes in the noradrenalin titers. The article was presented by  
Active member AMN SSSR, V. V. Zakusov. Orig. art. has: 3 figures.  
[WA-50; CBE No. 38][LP]

SUB CODE: 06/ SUBM DATE: 21Jul67/ ORIG REF: 004/ OTH REF: 015

Card 5/5

ACC NR: AP8034766

SOURCE CODE: UR/0346/68/000/010/0054/0055

AUTHOR: Yakovlev, S. A. (Chief specialist of antiepidemiology section);  
Tsivilev, I. V. (Senior veterinarian)

ORG: Main Veterinary Administration MSKh SSSR (Glavnoye upravleniye  
veterinariii MSKh SSSR)

TITLE: Vaccine against pasteurellosis of rabbits

SOURCE: Veterinariya, no. 10, 1968, 54-55

TOPIC TAGS: pasteurellosis, animal disease therapeutics

ABSTRACT: A vaccine against pasteurellosis of rabbits has been  
developed from formalinized *Pasteurella cuniculi*. Rabbits in unsafe or  
threatened farms are usually inoculated. After a preliminary injection  
of terramycin, rabbits older than 1.5 months were given two subcutaneous  
vaccinations in doses of 1-3 ml, depending on age. Immunity lasted up  
to 15 months after vaccination. Younger rabbits were given anti-  
pasteurellosis serum. Farm animals, commercial fur-bearing animals,  
rodents, and pigeons are all susceptible to this type of pasteurellosis.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 1/1

UDC: 619:616.981.459-085.37:636.92

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ACC NR: AT8032711

SOURCE CODE: UR/3404/65/016/000/0182/0189

AUTHOR: Yav'ya, A. R.; Bliznyuk, V. V.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera.  
(Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: Epidemiological and immunological characteristics of natural foci of TBE in Tomsk oblast

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 182-189

TOPIC TAGS: epizootiology, immunology, tickborne encephalitis, disease vector

ABSTRACT: The principle carrier of TBE is the wood tick (*Ixodes persulcatus*) which is distributed throughout Tomsk oblast. Forest areas usually contain plentiful tick populations or none at all, and are therefore called "uninhabitable" or "habitable" foci. The geobotanical subzones of this province are usually homogeneous and the plant cover affects the type of small mammal population living in the focus. The most important foci are usually in the southern part of this province and almost none at all are found in the extreme north. In this

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ACC NR: AT8032711

study, the foci were structured immunologically and by morbidity of TBE as shown by public health records. The uninhabitable zone is characterized by a low incidence of ticks and adult mammals. The secondary focus is usually the site of human settlements and farms. Ticks are abundant here because of the large numbers of potential hosts. Serological examinations of the inhabitants of a focus (animal and human) show that the

Table 1. Data on the physical, geographical, and economic characteristics of a subzone of Tomsk oblast and the local incidence of TBE

Subzone name	Forested area	Swamp area	Arable land	Head of cattle/ha	Population density/km <sup>2</sup>	Morbidity/10,000 population	Serological incidence in rural areas	8-yr average
	%							
Northern cedar swamps	46.2	42.0	0.16	0.001	0.3	0	0	0
Swampy central coniferous forest and swamp zone	67.2	28.3	4.8	0.01	1.3	1.3	1.4	12.2 ± 0.8
Southern transition zone	67.8	0.9	13.7	0.01	6.6	3.5	7.5	87.8

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ACC NR: AT8032711

Table 2. Immunological structure of persons, agricultural and wild animals in different geogotanical zones of Tomsk oblast

Subzone name	Results of serological studies					Serum titers among humans		
	humans		domestic animals		wild animals	hemagglutination inhibition		
	hemagglutination inhibition	complement fixation	hemagglutination inhibition	complement fixation	hemagglutination inhibition	low	average	high
Northern cedar swamp	38.5	36.8	26.3	42.8	—	62.1	35.1	2.1
Central coniferous swamp	70.5	38.8	80.0	42.0	17.1	30.5	44.2	13.5

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ACC NR: AT8032711

Table 2. (Cont.)

Southern transitional	Pre-taiga zone	92.0	45.3	97.9	53.0	16.1	12.3	47.6	39.2
	Dry birch valley	40.2	36.3	—	—	—	43.1	45.1	11.7

Legend: antibody titers—low to 1:20, average to 1:80, high - 1:1280.

yearly infection rate is about 90%, with most persons having the latent or typical clinical form of the disease. Dissemination in the secondary foci depends upon the population density and habits of the people. As winter approaches, travel decreases and so does the TBE incidence. The absence of recorded cases in one or another subregion does not exclude the possibility of a natural TBE focus in a given territory. Table 1 shows data on the environmental and economic characteristics of part of Tomsk oblast and the incidence of TBE among the population.

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ACC NR: AT8032711

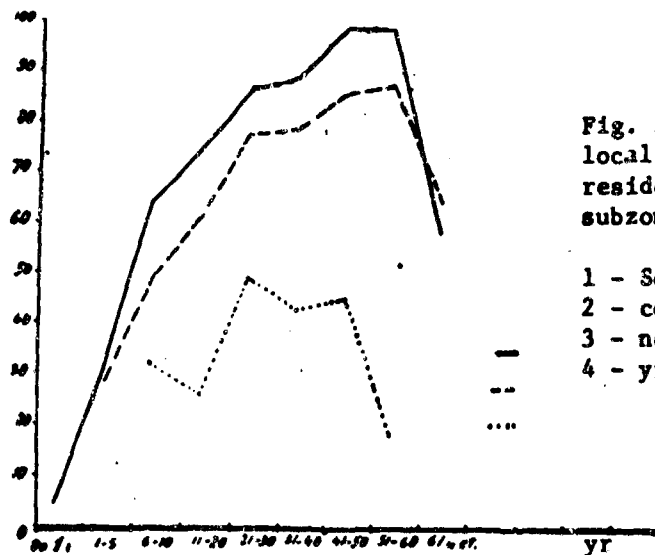


Fig. 1. Immunity levels in local population depending on residence period in a given subzone

1 - Southern transitional;  
2 - central coniferous swamp;  
3 - northern cedar swamp;  
4 - yr; 5 - %

Table 2 shows the immunological incidence among human and animals.  
Orig. art. has: 2 tables and 1 figure. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 5/5

ACC NR: AT8032695

SOURCE CODE: UR/3404/65/016/000/0019/0022

AUTHOR: Yerofeyev, V. S.; Lonshakova, A. A.

ORG: Tomsk Scientific Research Institute of Vaccines and Sera (Tomskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok)

TITLE: The hemagglutination reaction and the passive hemagglutination reaction for observation and identification of tickborne encephalitis virus

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 19-22

TOPIC TAGS: hemagglutination, encephalitis

ABSTRACT: Comparison of serological tests for identification of tick-borne encephalitis virus showed that the hemagglutination reaction and the passive hemagglutination reaction (PHR) are simple, rapid methods which should be widely used. A total of 28 strains of tickborne encephalitis virus, isolated from 291 batches of ticks and 53 batches of wild animal brains passaged 3 to 4 times, were used. In the neutralization reaction, the logarithm of the neutralization index was 2.0-5.6 after intracerebral infection of white mice. A simplified method of

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ACC NR: AT8032695

preparing hemagglutinating antigen was used, consisting of homogenization of virus-containing brain tissue, use of a pH 9.0 borate-salt solution heated to 37°C to speed up extraction of hemagglutinin, and centrifugation for 30 min at 1200 rpm. The antigen titer varied from 1:640 to 1:2560, (1:1215 on the average). The hemagglutinating activity of antigen prepared in this manner was retained for 6 months with a 2- to 4-fold drop in titer. The PHR was conducted with hyper-immune horse serum, antiencephalitic preparations, and with guinea pig serum. Specific immune sera prevented hemagglutination of all viral strains in titers from 1:320 to 1:5120. The hemagglutination titer depended on the clinical course of the disease in white mice and on the virus titer, but did not depend on the method of infection of mice, the length of the incubation period, or the number of passages.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 002

Card 2/2

ACC NR: AP8034773

SOURCE CODE: UR/0346, 18/000/010/0111/0112

AUTHOR: Yunusova, M. I.; Berezhnov, I. I.; Ryzhkova, A. T.; Savelev, A. V.; Tabanina, M. I.; Fitskhelaurova, V. V.

ORG: Institute of Experimental Medicine AMN SSSR, Leningrad (Institut eksperimental'noy meditsiny AMN SSSR)

TITLE: The allergic test for diagnosis of pseudotuberculosis among guinea pigs

SOURCE: Veterinariya, no. 10, 1968, 111-112

TOPIC TAGS: pseudotuberculosis, epizootiology

ABSTRACT: Enzootics of pseudotuberculosis among guinea pigs in nurseries in 1961 and 1962 killed hundreds of animals. Clinical symptoms appeared only one to two days before death. An intracutaneous test with pseudotuberculosis allergen was developed and in 1965-1966, 5221 guinea pigs in various nurseries with different epizootological situations were tested. A high degree of correlation between results of the allergic test and of anatomical study was observed. It was concluded that when

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UDC: 619:616.982.215-077.31:636.91

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ACC NR: AP8034773

results are doubtful, the allergic test should be read 72 hr after injection of allergen. During outbreaks of pseudotuberculosis, 3—6% of guinea pigs were infected according to the allergic intracutaneous test, as compared with 0.84% infected animals during safe periods. A 0.1 ml dose of allergen (heated autolysate of *P. pseudotuberculosis*) was used in the intracutaneous test. Orig. art. has: 3 tables.  
[WA-50; CBE No. 3 [JS]

SUB CODE: 06/ SURM DATE: none

Card 2/2

ACC NR: AP8034762

SOURCE CODE: UR/0346/68/000/010/0045/0046

AUTHOR: Zabrodin, V. A. (Candidate of veterinary sciences)

ORG: Scientific Research Institute of Agriculture of the Far North  
(Nauchno-issledovatel'skiy institut sel'skogo khozyaystva Kraynogo Severa)

TITLE: Brucellosis among wild reindeer

SOURCE: Veterinariya, no. 10, 1968, 45-46

TOPIC TAGS: epidemiologic focus, brucellosis

ABSTRACT: *Brucella* cultures isolated from reindeer in the Taymyr and Evenki National Okrugs were identical to *Brucella* strains isolated from domestic reindeer, and were classified by cultural and biochemical properties as *Br. suis* type 4. The existence of independent brucellosis foci among domestic and wild reindeer (with no participation from other agricultural animals) was established. Wild reindeer infected with brucellosis can be a source of infection for domestic reindeer and wild animals (wolves, wolverines, and possibly others). Studies were conducted in 1960—1968. Material for bacteriological study consisted of pieces of

Card 1/2

UDC: 619:616.981.42-036.2:636.294

ACC NR: AP8034762

parenchymatous organs, lymph nodes, etc. Isolated *Brucella* cultures were agglutinated only with immune serum to *Br. melitensis*. The virulence of these cultures for guinea pigs was 25—50 cells. Maintenance of a culture for 7 yr on artificial media did not change its original properties. At present there are twice as many wild reindeer in this area as domestic reindeer, and cattle brucellosis has been eliminated.

[WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Card 2/2

ACC NR: AT8032706

SOURCE CODE: UR/3404/65/016/000/0141/0144

AUTHOR: Zasukhin, D. N.

ORG: Toxoplasmosis Laboratory, Institute of Epidemiology and Microbiology im. N. F. Gamaleya, AMN SSSR, Moscow (Laboratoriya toksoplazmoza Instituta epidemiologii i mikrobiologii AMN SSSR)

TITLE: Natural foci of toxoplasmosis

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 141-144

TOPIC TAGS: toxoplasmosis, epidemiologic focus, epizootiology

ABSTRACT: The animal species in which *Toxoplasma gondii* have been found in the USSR are shown in Table 1. *Toxoplasma* can apparently circulate among wild animals independently of farm or domestic animals or man. In addition, antibodies were found in the sera of 80 species of Caucasian

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ACC NR: AT8032706

Table 1. Animal species in which *Toxoplasma* were isolated

Species		Location (where isolated)
Little suslik	<i>Citellus pygmaeus</i>	Western Kazakhstan
Red-cheeked suslik	<i>Citellus erythro-</i> <i>genus</i>	Omsk oblast
Large-toothed suslik	<i>Citellus fulvus</i>	Kazakhstan
Turkestan rat	<i>Rattus norvegicus</i>	Kulyab
Norway rat	<i>Rattus norvegicus</i>	Turkmeniya
Norway rat	<i>Rattus norvegicus</i>	Tbilisi
Norway rat	<i>Rattus norvegicus</i>	North Caucasus
Common vole	<i>Microtus arvalis</i>	Kazakhstan
"	<i>Microtus arvalis</i>	Azerbaydzhan

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ACC NR: AT8032706

Table 1. (Cont.)

"	<i>Microtus arvalis</i>	Yaroslav oblast
Root vole	<i>Microtus oeconomus</i>	The same
Common redbacked vole	<i>Clethrionomys gla-</i> <i>reculus</i>	Tula
Yellow-throated field mouse	<i>Apodemus flavico-</i> <i>llis</i>	Tula
House mouse	<i>Mus musculus</i>	Moldavia
Common field mouse	<i>Apodemus sylvati-</i> <i>cus</i>	Moldavia
Gerbil	<i>Meriones tristrami</i>	Azerbaydzhan
Red-tailed Libyan jird	<i>Meriones libicus</i>	Tadzhikistan
Hare	<i>Lepus talai</i>	Kazakhstan

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ACC NR: AT8032706

Table 1. (Cont.)

Shrew	<i>Sorex araneus</i>	Kalinin oblast
Shrew	<i>S. macropygmeus</i>	Kalinin oblast
Shrew	<i>S. minutus</i>	Kalinin oblast
Siberian polecat	<i>Mustella putorius</i>	Kazakhstan
Wildcat	<i>Felis silvestris</i>	Moldavia
Corsac fox	<i>Vulpes corsac</i>	Kazakhstan
Saiga	<i>Saiga tatarica</i>	Kazakhstan

birds and 38 species of Transcaucasian birds in the complement-fixation reaction with *Toxoplasma* antigen. [WA-50; CBE No. 38] [JS]

SUB CODE: 06/ SUBM DATE: none

Cord 4/4

ACC NR: AT8032707

SOURCE CODE: UR/3404/65/0.6/000/0145/0153

AUTHOR: Zasukhin, D. N.; Gracheva, L. I.

ORG: Laboratory of Toxoplasmosis, Institute of Epidemiology and Microbiology im. N. F. Gamaleya AMN SSSR (Laboratoriya toksoplazmoza Instituta epidemiologii i mikrobiologii AMN SSSR)

TITLE: Current status of the problem of laboratory methods of diagnosing toxoplasmosis

SOURCE: Tomsk. Nauchno-issledovatel'skiy institut vaktsin i syvorotok. Trudy, v. 16, 1965. Voprosy epidemiologii, mikrobiologii i immunologii (Problems of epidemiology, microbiology and immunology), 145-153

TOPIC TAGS: parasitic disease, toxoplasmosis

ABSTRACT: Laboratory diagnosis of toxoplasmosis may be made by parasitological, serological, and allergic methods. Parasites may be detected in tissues and fluids, in smears and histological sections, and by bio-probes with these materials in laboratory animals, or by isolation of parasites from necropsy material. Serological methods include the dye test, complement-fixation test, the hemagglutination inhibition test, flocculation reaction and the precipitation reaction. Although the dye

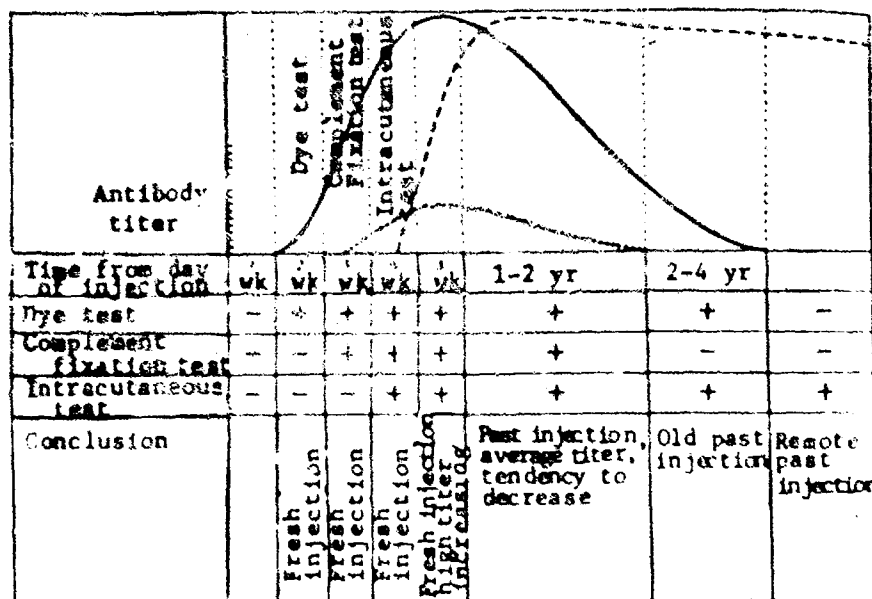
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Cord 1/4



test is highly specific, it is not widely used because it requires the use of live *Toxoplasma*. The complement-fixation reaction gives a positive reaction later than the dye test; however, it can be done in any laboratory with antigen prepared in central laboratories. The hemagglutination inhibition reaction using washed human or sheep erythrocytes and antigen prepared from peritoneal exudate of white mice as proposed by Jacobs and Lunde permits detection of antibody earlier than with the complement-fixation reaction, but later than with the dye test. It has been proposed that erythrocytes be treated with formalin, or that they be replaced by other substances, e.g., polystyrenes. The flocculation test is safer than the dye test, but in studies on white mice infected with toxoplasmosis, a positive flocculation reaction was obtained 24 days after infection, while a positive test was obtained 11 days after infection with the dye test. The agglutination reaction using intraperitoneal exudate of rats for antigen as proposed by Fulton and Turk should be used more widely because of the simplicity for preparing the test. The precipitation reaction is less sensitive than the dye test or the complement-fixation reaction. The fluorescent antibody technique using killed *Toxoplasma* for antibody detection may be done by the direct or indirect methods, or by

Card 2/4

Fig. 1. Dynamics of different reactions to *Toxoplasma*.

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ACC NR: A 3032707

the indirect method with addition of complement; it is highly sensitive and is widely used. The intracutaneous with toxoplasmin is also highly specific. Orig. art. has: 1 figure. [WA-50; CHE No. 38] {XF}

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001

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# ACCESSION NUMBERS FOR BIOLOGICAL FACTORS

AP8023772	AP8034584	AT8028065
AP8023773	AP8035175	AT8028066
AP8023774	AP8035176	AT8028067
AP8023776	AP8035381	AT8031914
AP8024291	AP8035719	AT8031995
AP8024295	AP8035741	AT8031996
AP8024799	AP8035811	AT8031998
AP8024800	AP8036855	AT8037221
AP8026855	AP8037042	AT8037222
AP8029007	AP8037403	AT8037223
AP8030317	AP8037598	AT8037224
AP8030318	AP8037605	AT8037225
AP8033814	AP8037718	AT8037227
AP8033939		AT8037228
AP8033976	AT8028053	AT8037229
AP8034569	AT8028054	AT8037230
AP8034570	AT8028055	AT8037232
AP8034572	AT8028056	AT8037881
		AT9000523

### **III. ENVIRONMENTAL FACTORS**

ACC NR: AP8029683

SOURCE CODE: UR/0050/68/000/008/0102/0106

AUTHOR: Anapol'skaya, L. Ye. (Candidate of geographical sciences);  
Protopopov, N. G. (Candidate of technical sciences)

ORG: Main Geophysical Observatory (Glavnaya geofizicheskaya  
observatoriya)

TITLE: Results of the introduction of the M-63 wind-measuring set at  
network weather stations

SOURCE: Meteorologiya i gidrologiya, no. 8, 1968, 102-106

TOPIC TAGS: meteorologic instrument, anemometer/(U)M-63 anemorumbometer

ABSTRACT: A brief description is given of the M-63 anemorumbometer (wind-measuring set), first built in 1963, tested by the state, and recommended for installation at the weather stations of the Hydro-meteorological Service network. This instrument makes it possible to measure the following: 1) instantaneous wind speeds between 1.5 and 60 m/sec with an error of  $\pm (1 \text{ m/sec} + 0.05 V_{\text{inst}}) \text{ m/sec}$ , where  $V_{\text{inst}}$  is the measured magnitude of the wind speed; 2) maximum wind speeds, for the period between measurements, of from 3-60 m/sec with an error of  $\pm (1 \text{ m/sec} + 0.07 V_{\text{max}}) \text{ m/sec}$ ; 3) mean wind speed, automatically.

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UDC: 551.508.5

ACC NR: AP8029683

measured for successive 10-min time intervals, of 1 to 40 m/sec with an error of  $\pm (0.5 \text{ m/sec} + 0.05 V_{\text{mean}}) \text{ m/sec}$ ; and 4) wind direction over 0-360° with an error of  $\pm 5^\circ$ ; the vane measures direction with an accuracy of 1.5 m/sec. Since each unit of the instrument can be operated separately, data are still recorded by some of the components even when one is out of operation. Data collected by the weather stations at which this instrument was operational during the 1965-1966 period are analyzed to determine the quality of operation. Special attention is focused on the translational characteristics of the screw as they affect wind-gust measurement, the methods of calculation, and calculation of gust loads on the superstructure (mast). Observations made with the M-63, compared with measurements made simultaneously with wind vanes (reported in detail in *Trudy GGO, no. 174, 1965*), are supplemented with tabulated data for the Chokpar, Zhongis, and Yerevan stations. These comparisons, using identical averaging intervals, indicate that measurements made with the two instruments were essentially identical. In general, these instruments (565 in operation by the end of 1966) are adjudged to be very satisfactory. Recommendations made by the Main Geophysical Observatory include further improvement of the clock mechanism, replacement of metal screws

ACC NR: AP8029683

with fiber-glass reinforced plastic, and minor changes in the power and 400-Hz circuits. Orig. art. has: 2 figures, 1 table, and 2 formulas. [WA-50; CBE No. 38][ER]

SUB CODE: 04/ SUBM DATE: 06Mar68/ ORIG REF: 005

Card 3/3

ACC NR: AT8025860

SOURCE CODE: UR/2667/67/000/043/0022/0037

AUTHOR: Anisimova, T. N.

ORG: none

TITLE: Types of daily variation in wind speed in the lowland areas of the USSR

SOURCE: Moscow. Nauchno-issledovatel'skiy institut aeroklimatologii. Trudy, no. 43, 1967. Voprosy klimatologii (Problems of climatology), 22-37

TOPIC TAGS: atmospheric boundary layer, atmospheric wind field, wind measurement, wind speed, local wind

ABSTRACT: The characteristics of the daily variation of wind speed in the surface boundary layer are investigated with punch card equipment using hourly variations in wind speed at a height of 10 m recorded at 52 airport stations over a 5-year period. Data are presented on the annual variation of the amplitude of wind speed, the turbulence coefficient and radiation balance, the annual variation in wind speed in different latitude zones, the daily variation of the parameter  $K$

$$K_1 = \frac{v_1 - v}{v} 100,$$

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ACC NR: AT8025860

where  $v_i$  is the wind speed at the  $i$ -th hour,  $\bar{v}$  is the mean daily wind speed and  $A$  is the daily amplitude in wind speed, etc. The daily variation in wind speed, determined in lowland conditions primarily by the daily variation of turbulence, is clearly evident from March-April to October and in the middle latitudes it is marked by comparative uniformity. This makes it possible to obtain generalized isopleths for approximate computation of the daily variation in wind speed from the mean speed and amplitude. The influence of the terrain characteristics favors the formation of local winds which may alter substantially the daily variation in wind speed. Orig. art. has: 6 figures, 3 formulas and 6 tables.  
[WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 006

Card 2/2

ACC NR: AT8025827

SOURCE CODE: UR/3201/67/000/004/0065/0072

AUTHOR: Artemova, N. Ye.

ORG: none

TITLE: Possible method of estimating the average daily concentration of a pollutant in the atmospheric surface boundary layer

SOURCE: Leningrad. Institut prikladnoy geofiziki. Trudy, no. 4, 1967. Zakonomernosti rasseyaniya aerol'nykh chastits v atmosfere (Dispersion patterns of aerosol particles in the atmosphere), 65-72

TOPIC TAGS: atmospheric pollution, atmospheric surface boundary layer, pollutant concentration, pollutant fallout, meteorologic tower

ABSTRACT: A method is described by which empirical coefficients are determined for the conversion of atmospheric pollutants discharged in "single-events" to average daily values. The method is demonstrated to be applicable to areas of little relief and remoteness from water bodies. The data used consisted of daily measurements of wind directions made on 58 days during different seasons at the 8.25-, 121-, and 217-m levels on the 300-m tower at Obninsk. The effects of wind-speed changes and atmospheric stratification were not taken into account. The procedure called for determination of the average wind direction at 20-min intervals;

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these were subsequently grouped in series of  $20^\circ$ . The frequency  $N(\phi)$  of winds of a given direction  $\phi$  was calculated as the ratio of the number of instances of a given wind direction to the total number of instances occurring during a day. Four types of wind-direction changes were identified: 1) steady wind direction, the maximum total frequency in the  $20^\circ$  range being 0.51—0.71; 2) wind direction of average steadiness, the maximum total frequency being 0.32—0.50; 3) variable wind direction, with maximum total frequency of 0.22—0.31; and 4) abrupt shifts in wind direction (up to  $180^\circ$ ), with a maximum total frequency of 0.22—0.42. Type-1 cases were associated with the presence over the area of a stable pressure center. Type-2 instances also occurred in the presence of a stable pressure field but with some movement of the center. Type-3 occurred during periods of extreme variability in the pressure field, and type-4, generally on days when the direction of the pressure gradient changed abruptly, e.g., passage of front. The average daily pollutant concentration  $\bar{q}$  expressed as a function of the distance from the pollutant source  $r$  was derived by integrating the "single-event" concentrations for all wind directions observed during a day. Taking lateral dispersion into account, the pollutant distribution follows the normal law with some angular dispersion  $\sigma_1$  and

$$\bar{q}(r) = \int_0^{2\pi} q_0(r) e^{-\frac{(\phi - \phi_0)^2}{2\sigma_1^2}} N(\phi_0) d\phi_0, \quad (1)$$

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where  $q_0(r)$  is the "single-event" concentration on the plume axis, and  $\phi_0$  is the "single-event" wind direction (averaged for 20 min). For the first three of the above types, the distributions follow the normal law with some angular dispersion  $\sigma_2$

$$N(\phi_0) = N_m e^{-\frac{\phi_0^2}{2\sigma_2^2}}. \quad (2)$$

Integration of (1) gave

$$\bar{q}(r) = \frac{1}{\sqrt{2\pi(\sigma_1^2 + \sigma_2^2)}} e^{-\frac{r^2}{2(\sigma_1^2 + \sigma_2^2)}}, \quad (3)$$

and the average daily "single-event" concentration ratio on the axis of distribution was calculated as

$$\frac{\bar{q}}{q_{\text{vaz}}} = \frac{\sigma_1}{\sqrt{\sigma_1^2 + \sigma_2^2}}. \quad (4)$$

The magnitude of  $\sigma_1$  required in determining the numerical coefficient of transition from single-event concentration to daily concentrations using (4) was taken from Byzova's results (*Izv. Akad. nauk SSSR*, 1963) as  $\sigma_1 = A_r \beta^{-1}$ , and it was used to calculate the  $q/q_{\text{vaz}}$  ratio for various distances from the pollution source  $r$ . These calculations showed that the ratio of the daily concentration to the "single-event" concentration became smaller with greater distances from the source. At  $r = 1-3$  km,

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ACC NR: AT8025827

in steady winds (type 1) the value was 0.47 of the "single-event" concentration and in less steady winds, only 0.21 for type 3. This procedure is, therefore, adequate to estimate daily pollutant concentrations in the atmospheric surface boundary layer and they will not exceed 0.5 of that of the "single-event" concentrations. The average value, in all types of wind-direction groupings, will be 0.35 of that of the "single-event" concentrations. Orig. art. has: 2 figures, 2 tables, and 5 formulas.

[WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Card 4/4

ACC NR: AT8017497

SOURCE CODE: UR/2531/67/000/202/001/0031

AUTHOR: Belyayev, V. I.; Vyal'tsev, V. V.

ORG: none

TITLE: Method of dispersing clouds over large areas

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 202, 1967. Fizika oblakov i aktivnykh vozdeystviy (Physics of clouds and modifications), 22-31

TOPIC TAGS: weather modification, stratus cloud, cloud seeding, crystallization

ABSTRACT: The method presented for calculating the expansion of crystallization zones when stratus clouds are seeded is based on the concept that the region of the crystallization phase is separated from that of the fluid phase by a distinct crystallization front. The position of the crystallization front in space may be identical with the position of the value of "frontal" concentration determined by

$$n_2^* = \frac{W + \Delta\eta}{m_2}$$

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UDC: 551.576:551.509(061.6)  
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ACC NR: AT8017497

where  $W$  is the water content of a cloud,  $\Delta q$  is the moisture deficit in relation to ice in the cloud, and  $m_2$  is the mass of falling crystals. An equation is derived for  $X_{\max}$ :

$$X_{\max} = \sqrt{2K^* \tau_{\max}} = \frac{1}{\sqrt{2\pi l}} \frac{\epsilon}{n_2^*};$$

where  $X_{\max}$  is the maximum distance from the front to the seeding surface (half the width of the seeding zone),  $K^*$  is the effective coefficient of turbulent diffusion at moment  $\tau_{\max}$ ,  $\epsilon$  is the concentration of nuclei on a seeding surface at the initial moment of time,  $\tau$  is time, and

$$\tau_{\max} = \int_0^{\tau_{\max}} K(\tau) d\tau = K^* \tau_{\max},$$

where  $l$  is the length of the crystallization zone. From the equation for  $n_2^*$  and  $X_{\max}$  it is possible to calculate the values of  $\epsilon$  characterizing the seeding of supercooled stratus clouds. The indirect computation of  $K^*$  and  $\epsilon$  is described. The possibility of further expansion of the crystallization zone because of large-scale atmospheric turbulent diffusion is examined by formulating the diffusion problem in the

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ACC NR: AT8017497

following equations:

$$\frac{\partial n_2}{\partial \tau} = K_x \frac{\partial^2 n_2}{\partial x^2} + K \left( \frac{\partial^2 n_2}{\partial x^2} + \frac{\partial^2 n_2}{\partial y^2} \right);$$

$$n_2(0, x, y, z) = f(x, y, z);$$

$$n_2(\tau, x, y, z) = 0 \text{ in the case of } x, y, z \in L_1,$$

$$n_2(\tau, x, y, z) = n_2^* \text{ in the case of } x, y, z \in L_2,$$

where  $L$  and  $L_2$  are the outer and inner boundaries of the frontal zone of width  $l$ ,  $K$  is selected to correspond to the characteristic scale of the phenomenon, and  $n_2^*$  is determined by the aforementioned equation. For conditions represented by

$$n_2(\tau, x, y, z) = 0 \text{ in the case of } x, y, z \rightarrow \infty,$$

$$n_2(0, x, y, z) = \begin{cases} 1 & \text{for } -h \leq x \leq h, -h \leq y \leq h, -H \leq z \leq H, \\ 0 & \text{outside the square} \end{cases}$$

the solution is

$$n_2(\tau, x, y, z) = \frac{1}{h} \left[ \Phi \left( \frac{x+h}{\sqrt{2K\tau}} \right) - \Phi \left( \frac{x-h}{\sqrt{2K\tau}} \right) \right] \left[ \Phi \left( \frac{y+h}{\sqrt{2K\tau}} \right) - \Phi \left( \frac{y-h}{\sqrt{2K\tau}} \right) \right] \left[ \Phi \left( \frac{z+H}{\sqrt{2K\tau}} \right) - \Phi \left( \frac{z-H}{\sqrt{2K\tau}} \right) \right]$$

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ACC NR: AT8017497

An approximate solution is presented, namely:

$$n_2^{(1)}(x, 0) = n_2(x, 0),$$
$$n_2^{(m)}(x, \tau_{m-1}) = \begin{cases} n_2^{(m-1)}(x, \tau_{m-1}) & \text{for } x < x^*, \\ 0 & \text{for } x > x^*, \end{cases} \quad m=2,3,4, \dots,$$

where

$$n_2^{(m-1)}(x^*, \tau_{m-1}) = n_2^*,$$
$$n_2^{(m)}(x, \tau) = 0 \quad \text{for } x \rightarrow \infty.$$

Calculations show that initial crystallization zones can be increased substantially in cloud masses as a result of turbulent diffusion of ice crystals if the concentration of the latter is sufficiently high. There should be a local superseeding of the cloud with dry ice. Experimental studies demonstrate that superseeding over a small area produces a significant extension of the seeding zone (more than twice), owing to the extension of the crystallization zone relative to the cloud sector treated with the reagent. Orig. art. has: 5 figures and 16 formulas. [WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 005

Card 4/4

ACC NR: AT8025200

SOURCE CODE: UR/3061/67/000/021/0045/0055

AUTHOR: Beritashvili, B. Sh.

ORG: none

TITLE: Atmospheric moisture in downdrafts in clouds

SOURCE: Tiflis. Zakavkazskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut. Trudy, no. 21(27), 1967. Fizika oblakov, atmosfernoye elektrichestvo, ozonometriya i aktivnyye vozdeystviya na oblaka v gornykh usloviyakh (Physics of clouds, atmospheric electricity, ozonometry and cloud modification in mountainous conditions), 45-55

TOPIC TAGS: cloud physics, atmospheric moisture, atmospheric turbulence, drop evaporation

ABSTRACT: The author evaluates various formulas for calculating the saturation deficit in descending air currents in clouds proposed by V. A. Zaytsev, P. Squires, and L. G. Kachurin and derives the following formula for calculating saturation deficit:

$$S = \frac{\Delta e_{\text{sat}}}{e_{\text{sat}}} = \frac{e_{\text{sat}}}{e_{\text{sat}}} \frac{1}{2} \left[ 1 - \frac{e_{\text{sat}}}{e_{\text{sat}}} \frac{1}{2} \frac{e_{\text{sat}}}{e_{\text{sat}}} \frac{e_{\text{sat}}}{e_{\text{sat}}} \right],$$

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UDC: 551.556+594.510.535+509.61+(479.2)  
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ACC NR: AT8025200

where  $n' = np'$  is the concentration of cloud drops, and  $p'$  is the atmospheric density. The magnitude  $dq/dt$  is obtained by the formula

$$\frac{dq}{dt} = 0.622 we \left( \frac{Lp}{ART^2p} \gamma_{ma} + \frac{p'g}{p^2} \right).$$

The atmospheric moisture in descending currents in clouds is calculated as a function of downdraft velocity, atmospheric pressure, and the microstructure of the clouds, taking into account the retardation of drop evaporation corresponding to the effect of the evaporation coefficient for the surface of small drops. The results show that under conditions usually observed under natural disintegration of small-drop clouds, the supersaturation of vapor in descending clouds may vary from insignificant positive magnitudes to several percent of the saturation deficit when the downdrafts flow at a constant velocity. Orig. art. has: 2 figures, 5 tables and 17 formulas. (WA-50; CBE No. 38)[729]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 006

Card 2/2

ACC NR: AT8025828

SOURCE CODE: UR/3201/67/000/004/0073/0090

AUTHOR: Berlyand, O. S.; Sokolovskaya, L. A.

ORG: none

TITLE: Estimate of pollutant concentration in the free atmosphere taking into account the variability of wind with time and with distance

SOURCE: Leningrad. Institut prikladnoy geofiziki. Trudy, no. 4, 1967. Zakonomernosti rasseyaniya aerosol'nykh chastits v atmosfere (Dispersion patterns of aerosol particles in the atmosphere), 73-90

TOPIC TAGS: atmospheric pollution, pollutant fallout, free atmosphere, wind field, distance factor

ABSTRACT: Estimates are made of the volumetric concentrations of heavy pollutants in the free atmosphere and of the density of the fallout precipitated on the ground from an instantaneous point source with the variability of wind with time and distance taken into account. Both of these factors are calculated with the turbulent diffusion equation, using the real variabilities in the wind over the USSR at various times of the year and for changing thicknesses of the layer.

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ACC NR: AT8025828

of the "mean" wind with height. The data used were wind variations measured during time intervals of from 2 to 12 hours at distances of from 100—1300 km. The magnitude of  $c_t = \frac{q_1}{q_2}$  ( $q_1$  is the magnitude of the

volumetric concentration in the region of a maximum during "mean" wind speeds, and  $q_2$  is the same concentration during changes in the wind speed) is used as the characteristic of the change in maximum concentration caused by the variation in the "mean" wind with time. For the 2—12-hr time intervals, the maximum values of  $c_t$  were: over Moscow, for a "mean" wind layer thickness of 0—12 km in the winter,  $\sim 3.0$  and for the summer,  $\sim 1.5$ , over Sverdlovsk (August and November 1961), it was  $\sim 3.0$ ; over Khabarovsk, with a "mean" wind layer thickness of 0—9 km, it was 11.0 in summer and 3.0 in winter; over Tbilisi, with a "mean" wind layer thickness of 0—5 km (August and September 1960),

$c_t \sim 2.5$ . The maximum values of  $c_t = \frac{q_1^*}{q_2^*}$  (where  $q_1^*$ ,  $q_2^*$  are the

corresponding values of  $q_1$  and  $q_2$  of the density of pollutant fallout determined as functions of the wind variability with time for 2—12-hr intervals) were: over Moscow, with a "mean" wind layer thickness of 0—12 km,  $c_t^* \sim 2.0$  in summer and  $\sim 3.0$  in winter; over Sverdlovsk,

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ACC NR: AT8025828

it was  $\sim 3.0$  in August and November 1961; over Khabarovsk, with a "mean" wind layer thickness of 0—9 km, it was  $\sim 5.5$  in summer and  $\sim 2.5$  in winter; over Tbilisi, with a "mean" wind layer thickness of 0—5 km and wind variations measured at 2—6-hr intervals (24 August to 31 September 1960),  $c_t^* \sim 3.0$ . The ratio of the volumetric concentration in the region of a maximum during periods of wind changes was about 1.2 at  $d = 1200$  km. The precipitation density ratio was of about the same order of magnitude irrespective of the area or time year. The  $c_t$  and  $c_t^*$  maxima occurred when the "mean" wind layer thickness was in the 0—9-km or 0—12-km ranges and apparently were associated with the presence of jet streams in the 0—12-km layer. Orig. art. has: 4 tables and 18 formulas. [WA-50; CBE No. 38][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 005

Card 3/3

ACC NR: AT8029299

SOURCE CODE: UR/2531/68/00000004/0062

AUTHOR: Budilova, Ye. P.; Lenshin, V. T.; Tolkachev, V. K.; Shishkin, N. S. (Doctor of physico-mathematical sciences)

ORG: none

TITLE: Investigation of thermals using gliders and light aircraft

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 224, 1968. Fizika oblakov i aktivnykh vozdeystviy (Physics of clouds and cloud seeding), 62-70

TOPIC TAGS: atmospheric convection, thermal, glider weather observation, aircraft weather observation, atmospheric turbulence

ABSTRACT: The instruments, aircraft, and procedures used by the Main Geophysical Observatory in cooperation with the All-Union Voluntary Society for Assistance to the Army, Air Force, and Navy of the USSR (DOSAAF) in investigating thermals are described. The specially equipped aircraft (L-13 "Blanik" glider and a Yak-12M plane), operating in 1965 and 1966 over the Orla region, were equipped with special temperature, humidity, and overload sensors, with readings registered optically, and with standard air speed and pressure sensors. An

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UDC: 551.511

ACC NR: AT8029299

A-10 meteorograph was also aboard. The principal purpose of the studies was to investigate with the gliders the spectra of the horizontal dimensions and speeds of the updrafts in the thermals. Of the thermals traced and investigated at different levels, those having diameters of from 0.5—1.5 km occurred with the greatest frequency (P ≈ 80%). As a general rule, the thermal cross sections were elliptical rather than round, the relationship of the ellipse being a function of the angle  $\theta$  in space of the axis of the thermal to the horizontal. The horizontal extent of the thermals normal to the wind direction  $L_{\perp}$  did not depend on the axis of the thermals. Consequently, this characteristic is more indicative than the extent  $L_{\parallel}$ , measured along the wind direction. The speed of the updrafts in the thermals was in excess of 4.0 m/sec and their maximum frequency (58.6%) in the sub-cloud layer was in the 2.0—3.0 m/sec range. The maximum speed recorded was 5.0—6.0 m/sec. The diurnal changes in the maximum magnitude of the updrafts in the thermals were determined to occur in the 200—600-m layer above the ground (between 1200 and 1500 hr). Orig. art. has: 4 figures, 4 tables, and 1 formula. [WA-50; CBE No. 38][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

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Card 2/2

ACC NR: AT8025825

SOURCE CODE: UR/3201/67/000/004/0048/0055

AUTHOR: Byzova, I. L. (Candidate of physico-mathematical sciences)

ORG: none

TITLE: Selection of diffusion coefficients in solving a semiempirical equation for a point source

SOURCE: Leningrad. Institut prikladnoy geofiziki. Trudy, no. 4, 1967. Zakonomernosti rasseyaniya aerol'nykh chastits v atmosfere (Dispersion patterns of aerosol particles in the atmosphere), 48-55

TOPIC TAGS: atmospheric turbulence, turbulent diffusion, diffusion coefficient, atmospheric pollution, atmospheric pollution model

ABSTRACT: The relationship between semiempirical and statistical methods used by several researchers in analyzing atmospheric turbulent diffusion processes is discussed. One of the principal results of this analysis is the conclusion that statistical methods sometimes reveal the physical meanings of the coefficients in the semiempirical equations and that they can be used as a basis for selecting these coefficients in describing specific processes. [Translation of author's abstract]

[WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 013/ OTH REF: 009

Card 1/1

ACC NR: AT8025826

SOURCE CODE: UR/3201/67/000/004/0056/0064

AUTHOR: Byzova, N. L. (Candidate of physico-mathematical sciences); Osipov, Yu. S.

ORG: none

TITLE: Pollutant dispersal from a point source in a crosswind direction

SOURCE: Leningrad. Institut prikladnoy geofiziki. Trudy, no. 4, 1967. Zakonomernosti rasseyaniya aerol'nykh chastits v atmosfere (Dispersion regularity of aerosol particles in atmosphere), 56-64

TOPIC TAGS: atmospheric pollution, pollutant dispersal, crosswind atmospheric dispersal, atmospheric model, statistic analysis

ABSTRACT: Results are presented of a two-part investigation of the air pollution produced by a point source in a direction transverse to the average wind direction. The first part compares results obtained in model experiments carried out under identical conditions, the only variable being the lengths of time the source was in operation. Part 2 presents the results of field studies of wind-direction changes over time intervals up to several hours. In the modelling experiments two point sources emitted different colored aerosols from same heights (25 or 50 m) and discharged identical amounts of effluents, but one source operated for a

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ACC NR: AT8025826

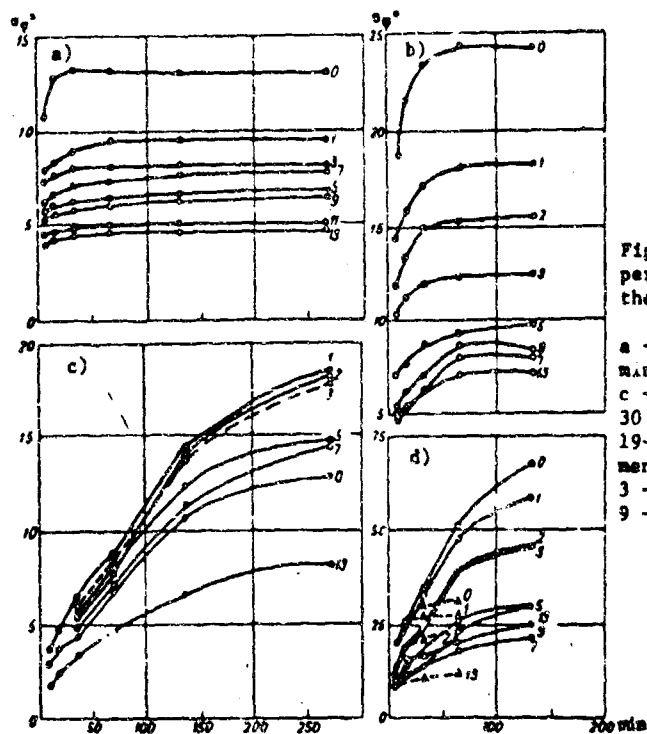


Fig. 1. Dependence of the dispersion of wind direction  $\sigma\phi$  on the upper averaging bound  $T$ :

a - 5 Feb 1964, 10-14 hr, 30 min; b - 1 July 1964, 7-10 hr; c - 30 June 1964, 18-23 hr, 30 min; d - 1 July 1964, 19-21 hr. Levels of measurement in m: 1 - 24.6; 2 - 49; 3 - 73; 5 - 121; 7 - 169; 9 - 217; 11 - 242; 13 - 301.

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ACC NR: AT8025826

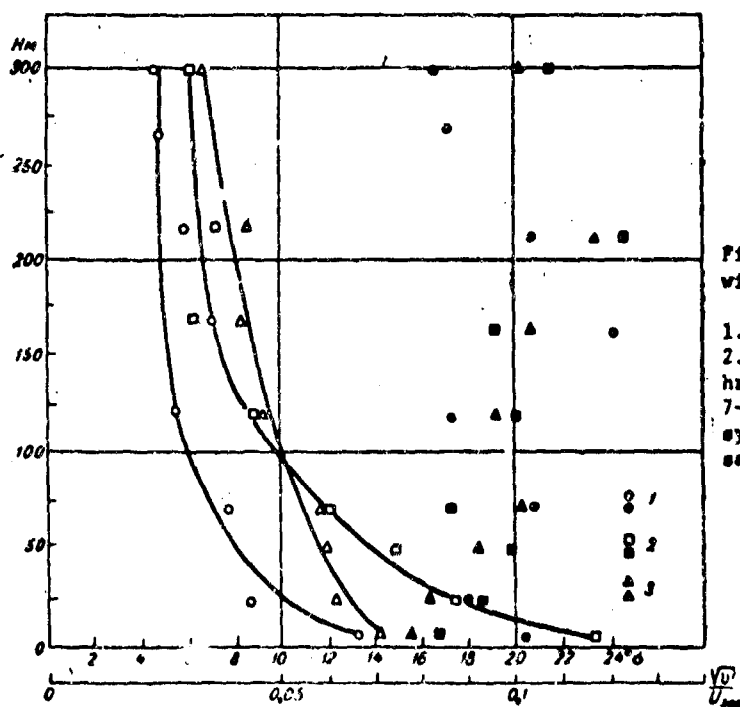


Fig. 2. Changes in  $\sigma\phi$  with height;

1. 5 February 1964; 2. 1 July 1964, 7-9 hr; 3. 2 July 1964, 7-10 hr. Solid symbols represent the same for  $\sqrt{\sigma^2}/U_{300m}$ .

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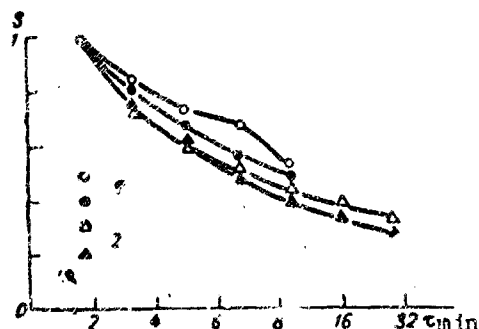


Fig. 3. Dependence of  $\sigma\phi(\tau, T)/\sigma\phi(\tau_0, T)$  on the lower averaging bound  $\tau$ . Open symbols denote levels above 100 m, and the solid symbols denote below 100 m;

1 - Summer; 2 - winter.

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ACC NR: AT8025826

period of 1—2 min, and the other about 30 min. The principal results obtained in this study indicated that at all distances from the source, the dispersion from the source operating over the longer periods exceeded that from the source operating over the shorter periods, but that the fallout density along the axes of the short-term sources generally was greater than that from the long-term sources. Experimental values of  $p\phi/p_k$  had noticeably greater spreads than did the  $\sigma_k/\sigma_\phi$  values; the average value obtained for the latter was 0.64 and for the former, 0.56. Earlier work by Aleksandrova and Byzova, Ivanov and Marozov had indicated that both values should increase with distance from the source; however, the present study showed that this was so only for the  $\sigma_k/\sigma_\phi$  ratio. In the second part of the paper, statistical averaging procedures are applied in a computerized analysis of simultaneous measurements of wind directions made on eight levels at the 300-m tower at Obninsk (8, 25, 49, 73, 121, 169, 217, and 301 m) to determine the upper and lower averaging bounds of wind-direction dispersion. The above diagrams illustrate the results obtained showing the dependence of  $\sigma\phi$  on  $T$  (Fig. 1), on  $H$  (Fig. 2), and on  $\tau$  (Fig. 3). Orig. art. has: 5 figures, 2 tables, and 4 formulas.

[WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 005

Card 5/5

ACC NR: AP8029676

SOURCE CODE: UR/0050/68/000/008/0010/0019

AUTHOR: Chalikov, D. v.

ORG: Institute of Oceanology, AN SSSR (Institut okeanologii AN SSSR)

TITLE: Calculation from synoptic information of turbulence fluxes near the ground

SOURCE: Meteorologiya i gidrologiya, no. 8, 1968, 10-19

TOPIC TAGS: atmospheric wind field, atmospheric turbulence, atmospheric boundary layer, atmospheric humidity, heat flux, atmospheric friction

ABSTRACT: The author presents a method for calculating the vectors of turbulent stress of friction  $\vec{\tau}$ , turbulent heat flux  $H$ , and turbulent moisture flux  $E$ , at the surface of the earth by means of data which are normally used in daily weather prediction. The method is based on the formulas of the geostrophic friction coefficient and the coefficients of heat and moisture exchange for the boundary layer of the atmosphere obtained on the basis of the similarity theory. The parameters  $\tau$ ,  $H$  and  $E$  are replaced by  $v_*$ ,  $T_*$  and  $q_*$ , respectively, on the basis of the formulas

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UDC: 551.510.522

ACC NR: AP8029676

$$v_* = \sqrt{\frac{\tau}{\rho}},$$
$$T_* = -\frac{H}{\alpha c_p \rho v_*},$$
$$q_* = -\frac{E}{\alpha \rho v_*},$$

where  $\rho$  is the density of air,  $c_p$  is the heat capacity of air at constant pressure,  $\alpha$  is the von Karman constant. The formulas establishing the relationship of the micrometeorological values  $v_*$ ,  $T_*$  and  $q_*$  with the aforementioned parameters are

$$\ln R_0 = B - \frac{v_*}{G} + \sqrt{\frac{v_*^2}{\left(\frac{v_*}{G}\right)^2} - A^2}, \quad \frac{T_*}{B_0} = \frac{c_H^{(0)}}{\ln \left( R_0 \frac{v_*}{G} \right) - C},$$
$$\sin |\alpha| = \alpha^{-1} \frac{v_*}{G} A, \quad \frac{q_*}{B_q} = \frac{c_E^{(0)}}{\ln \left( R_0 \frac{v_*}{G} \right) - D}.$$

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ACC NR: AP8029675

The relationships

$$\frac{v_*}{G} = \varphi_1 (R_0, S),$$

$$|\alpha| = \varphi_2 (R_0, S),$$

$$-\frac{H}{\alpha c_p \rho G \delta \theta} = -\frac{E}{\alpha \rho G \delta q} = \varphi_3 (R_0, S),$$

are derived, where  $\phi_1$ ,  $\phi_2$  and  $\phi_3$  are dimensionless universal functions. Nomograms are presented for determining these functions for heat and humidity. A procedure for a rough calculation of  $v_*$ ,  $\alpha$ ,  $H$ , and  $E$  is presented. Comparisons of calculations made with these procedures and empirical data suggest that the suggested techniques are also applicable to climatological calculations. Orig. art. has: 8 figures and 16 formulas. [WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: 15Mar68/ ORIG REF: 009/ OTH REF: 005

Card 3/3

ACC NR: AM8016679

Monograph

UR/

Davydov, L. K., ed.

The largest glaciers in Central Asia - the Fedchenko and Zeravshan glaciers; results of meteorological and hydrological investigations (Krupneyshiye ledniki Sredney Azii-ledniki Fedchenko i Zeravshanskiy; rezul'taty meteorologicheskikh i gidrologicheskikh issledovaniy). Leningrad, Izd-vo Leningrad univ., 1967, 263 p.

TOPIC TAGS: microclimatology, hydrology, glaciology, hydrochemistry, atmospheric circulation, local wind, radiation balance, heat balance, river runoff, water ice deposit

PURPOSE AND COVERAGE: This book is intended for geographers, glaciologists, climatologists, and hydrologists interested not only in the scientific aspects of the study of two of the largest glaciers in the world, but also in such practical applications as the potential water supply for irrigation purposes and the improvement of area weather forecasts. The book presents the results of meteorological and hydrological investigations carried out by the Geography Department of the Leningrad State University in the 1957-1962 period in accordance with the IGY program. It is divided into two parts. Part I deals with meteorological investigations and describes the general climatological conditions of the area, specific climatological conditions near the glaciers themselves,

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ACC NR: AM8016679

local mountain-valley circulation, weather forecasting techniques, and the radiation and heat conditions peculiar to the glacial surfaces. The second part deals with hydrological aspects of the study - runoff, fluvial deposits, and the geochemistry of the water. Orig. art. has: 85 figures, 101 tables, and 31 formulas. [WA-50; CBE No. 38] [ER]

SUB CODE: 08, 04/ SUBM DATE: 31Oct67/ ORIG REF: 170/ OTH REF: 029

Card 2/2

ACC NR: AT8027071

SOURCE CODE: UR/2531/68/000/197/0039/0047

AUTHOR: Dubov, A. S.

ORG: none

TITLE: Climatological magnitudes of heat flux

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 197, 1968. Primeneniye gidrodinamicheskikh metodov v prognoze pogody (Application of hydrodynamic methods in weather forecasting), 39-47

TOPIC TAGS: long range weather forecasting, atmospheric heat flux, atmospheric turbulence, turbulent exchange

ABSTRACT: Climatological magnitudes of heat fluxes at the 850-mb level over the area between 30 and 90° E. longitude and 25 and 75° N. latitude are calculated from the equation for the first law of thermodynamics, averaged for extended intervals of time ( $\partial T / \partial t = 0$ ). The mean monthly temperature and geopotential fields at this level were used as the initial data. The horizontal wind speed components were determined using geostrophic relationships and the averaged values of vertical velocities were taken from a paper by Pyatygina and Federova, published in *Trudy GGO, No. 197, 1968*. The correlation between the factors in the nonlinear terms were not taken into account. Calculations were made of the annual

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UDC: 551.511  
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ACC NR: AT8027071

variations in the heat influx component caused by horizontal and vertical temperature advection, and also by horizontal turbulent exchange ( $k_s = 0.4 \times 10^6 \text{ m}^2/\text{sec}$ ). An analysis was made of the annual variation in the total influx of heat above the continent and ocean and of the month-by-month heat influx distribution over the area studied. Orig. art. has: 4 figures, 1 table, and 4 formulas. [WA-50; CBE No. 38] [ER]

SIB CODE: 04/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 007

Card 2/2

ACC NR: AT8029307

SOURCE CODE: UR/2531/68/000/224/0130/0134

AUTHOR: D'yachenko, P. V.

ORG: none

TITLE: Apparatus for processing microphotographs of cloud and fog droplets

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 224, 1968. Fizika oblakov i aktivnykh vozdeystviy (Physics of clouds and cloud seeding), 130-134

TOPIC TAGS: meteorologic instrument, microphotography, cloud drop, fog drop, photographic processing, aerosol counter

ABSTRACT: A description is given of an improved model of a microphotographic counter used to measure the drop sizes and distribution of cloud and fog samples (2-12  $\mu$  in radius). Built in 1966 in the experimental workshops at the Main Geophysical Observatory, the counter consists of the following units: a projector equipped with a remote-controlled movie film rewinding mechanism, a "ferroresonance" voltage regulator, a light table, and the counter unit itself (see Figs. 1 and 2). The

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UDC: 531.715:778.31  
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ACC NR: AT8029307

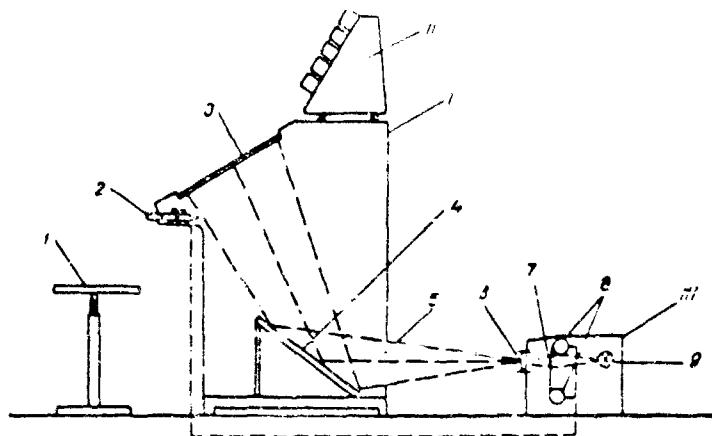


Fig. 1. Schematic of apparatus

I - Light table: 1 - stool; 2 - device for controlling the tape rewinding; 3 - measuring grid (screen); 4 - mirror; 5 - aperture for light beam; II - counting device with counter comb and contact spike; III - projector with remote controlled film rewind; 6 - lens; 7 - movie film; 8 - motors for film rewind; 9 - lamp

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ACC NR: AT8029307

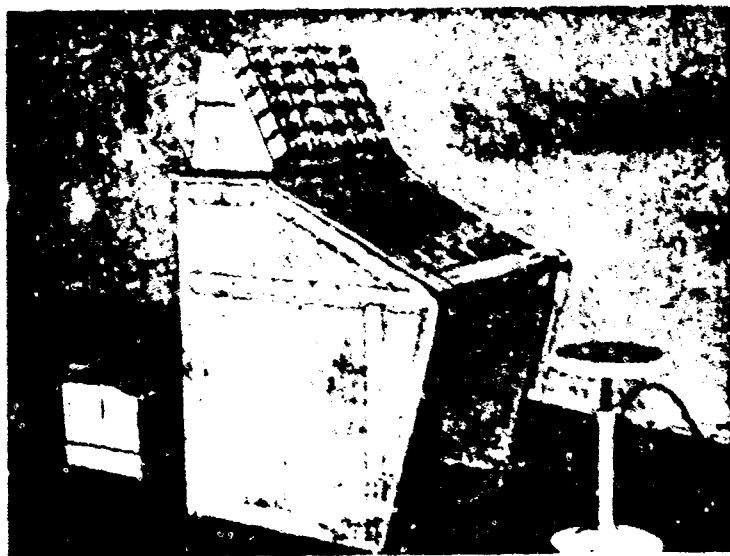


Fig. 2. View of apparatus set for operation

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NOT REPRODUCIBLE

ACC NR: AT8029307

LETI-55 diaprojector operates with less than 200 watts because of a converter which makes possible the use of a 12 v (90 watt) bulb. The drop images are projected onto a grid on the light table, which is designed so that these images are projected onto it at a selected magnification. The light table, and the mirror tilted toward it, are so designed that the horizontal and vertical magnifications are distortion-free on the grid screen. The distance between the light table and the projector is such that the total magnification corresponds to an interval of the counter comb of the computer device II, set on the light table. The computer device is a single unit of 25 electrical pulse counters (24 bits and 1 adder). The contact terminals of the 24 bits connect to 24 combs set at 2-mm intervals. In measuring the drop diameters the comb is brought over the image of the drop on the screen (see Fig. 3) and the end of the contact spike locks in on that counter comb contact which corresponds to the size of the drop being measured. The corresponding bits and the adder are activated in series at the same time. The main circuit of the counting device, shown in Fig. 4, has the following characteristics: 1. eliminates spurious triggering when the contact between the spike and comb are open (achieved by combining  $R_6$  and S), alternate triggering of the computer

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ACC NR: AT8029307

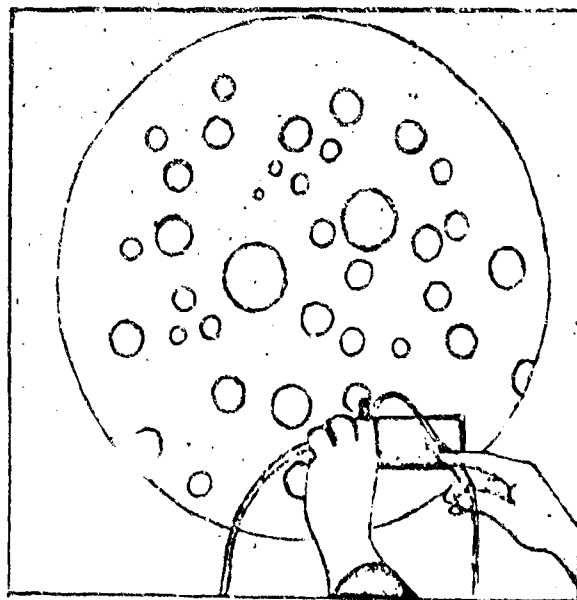


Fig. 3. Measurement of drop size

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ACC NR: AT8029307

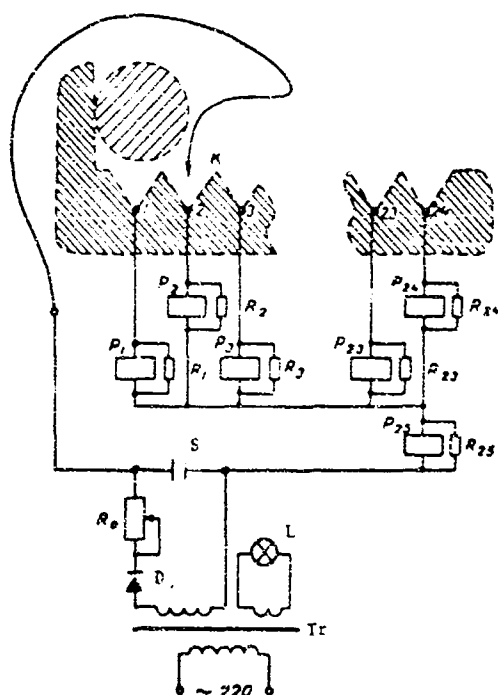


Fig. 4. Main circuit of the counting device

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ACC NR: AT8029307

is possible only every 3 sec, and the bit sensitivity is adjusted to that of the adder. An interchangeable comb set at 4-mm intervals makes it possible to measure coarsely dispersed aerosol systems; the 2-mm comb interval permits measurement of small drops up to  $1 \mu$  in diameter, and when the magnification is set at 500, up to  $2 \mu$  in diameter. Orig. art. has: 4 figures. [WA-50; CBE No. 38][ER]

SUB CODE: 04, 14/ SUBM DATE: none/ ORIG REF: 002

Card 7/7



ACC NR: AP8029011

SOURCE CODE: UR/0188/68/000/004/0020/0026

AUTHOR: Dyubyuk, A. F.

ORG: Chair of Physics of the Atmosphere, Moscow State University  
(Kafedra fizika atmosfery Moskovskogo gosudarstvennyy universitet)

TITLE: Calculation of horizontal transport in the problem of wind  
determination from the pressure field

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika,  
astronomiya, no. 4, 1968, 20-26

TOPIC TAGS: atmospheric wind field, atmospheric pressure, geostrophic  
wind

ABSTRACT: The solution of the problem of determination of wind from  
the pressure field with internal friction and Coriolis forces taken into  
account is extended by linearizing the problem relative to the geostro-  
phic wind and determining the deviations from the solution in the form  
of an Ekman spiral. The system of differential equations for the  
horizontal motion is written in the form

$$u_i + uu_x + vv_y - v\Delta u + lv = -Q_i \equiv -\frac{p_x}{\rho},$$

$$v_i + uv_x + vv_y - v\Delta v - lu = -Q_i \equiv -\frac{p_y}{\rho}.$$

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UDC: 551.557

ACC NR: AP8029011

where  $u$  and  $v$  are the velocity components in the left-hand system of  
coordinates,  $v$  is the coefficient of internal friction

$$\Delta = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2},$$

$l = 2\omega \sin \varphi$  is the Coriolis parameter,  $p$  is the atmospheric pressure,  
 $\rho$  is density. The problem is reduced to the solution of the equation

$$\tilde{S}_i + \bar{U}_x \tilde{S}_x + \bar{V}_y \tilde{S}_y - v\Delta \tilde{S} - il\tilde{S} = -(Q'_i + iQ'_2) \equiv -Q'$$

with boundary conditions

$$\tilde{S} = 0 \text{ where } z = 0 \text{ and where } z = \infty$$

in the case of  $\alpha$ , determined according to

$$\alpha = (1 - l) \sqrt{\frac{l}{2v}}.$$

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ACC NR: AP8029011

The final solution is obtained by the equation

$$S = \bar{S} + \bar{S}_g (1 - e^{-\alpha z}).$$

Solutions are presented for the stationary case, for the periodic wind regime, and for the nonstationary case. Orig. art. has: 38 formulas. [WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: 10May67/ ORIG REF: 008

Card 3/3

ACC NR: AP8029092

SOURCE CODE: UR/0362/68/004/008/0888/0890

AUTHOR: Dyubyuk, A. F.; Berezin, V. M.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: The influence function in one problem of wind determination from the pressure field

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 8, 1968, 888-890

TOPIC TAGS: atmospheric wind field, Green function, pressure gradient, Coriolis force, internal friction, atmospheric surface boundary layer

ABSTRACT: The article deals with the determination of wind from the pressure field by taking into account the Coriolis force and internal friction at low altitudes. Green's functions are introduced into linearized equations of motion in which the ratio of pressure gradient and air density is averaged over space and time, and averaged components of geostrophic wind are introduced. This permits calculation of wind at various heights from a known pressure gradient expressed in differences from the averaged gradient field. The calculated Green functions show that the greatest effect on the wind at a given point

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UDC: 551.511.3

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ACC NR: AP8029092

is caused by vertical perturbations of geostrophic wind above this point. The wind at any point is not completely determined by the pressure field at this point alone, but also by the general distribution of pressure in the vicinity. The reason for this is the horizontal advective and three-dimensional turbulent transfer at a nonuniform pressure gradient. The influence functions are calculated and shown graphically for heights of 10 and 100 m. Orig. art. has: 2 figures and 8 formulas. [WA-50; CBE No. 38][604]

SUB CODE: 04/ SUEM DATE: 02Oct67

Card 2/2

ACC NR: AT8026881

SOURCE CODE: UR/3373/67/000/006/0049/0055

AUTHOR: Kartashov, N. P.

ORG: none

TITLE: Rapid method for determining RaA concentration and latent energy in air containing radon

SOURCE: AN SSSR. Ural'skiy filial. Institut geofiziki. Geofizicheskiy sbornik, no. 6, 1967. Yaderno-geofizicheskiye issledovaniya (Nuclear-geophysical studies), 49-55

TOPIC TAGS: air pollution, polonium, radon, atmospheric radioactivity, aerosol radioactivity, radioactivity, radioactive fallout

ABSTRACT: A method described here and called an improved express-method was developed at the Institute of Geophysics for rapid determination of the total atmospheric concentration of RaA ( $Po^{218}$ ) produced by the radioactivity decay of radon and for the simultaneous determination of the total energy liberated in one liter of air due to the total radioactive decay of the short-life decay products of radon, viz., Ra (A, B, and C). The method consists of pumping air contaminated with Ra for 1 min 45 sec through an appropriate filter, counting the radioactivity

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ACC NR: AT8026881

for 15 sec, interrupting the counting for 2 min, and resuming counting for an additional 5 min and 15 sec. A theoretical calculation of the systematic errors incurred in determining the concentration of RaA and the liberated energy E was carried out (see Table 1), and the sensitivity and overall accuracy of the installation were determined. This

Table 1. Accuracy and sensitivity of the UEM (improved rapid method) installation

$C_a$ , Curie/liter	$\pm C_a$ , %	E, mev/liter	$\pm E$ , %
$1 \cdot 10^{-11}$	42,1	$1,3 \cdot 10^4$	46,7
$1 \cdot 10^{-10}$	17,3	$1,3 \cdot 10^4$	42,9
$5 \cdot 10^{-9}$	7,6	$6,5 \cdot 10^4$	40,8

Note:  $C_a$  = concentration of RaA

method may be used (with minor design modifications) for the determination of airborne radioactivity produced by the radioactive decay of various radioisotopes. Mass production of the device has been initiated. Orig. art. has: 3 tables, 2 figures, and 8 formulas.

[WA-50; CBE No. 38][449]

SUB CODE: 18, 04/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 002

Card 2/2

ACC NR: AF8029094

SOURCE CODE: UR/0362/68/004/008/0895/0901

AUTHOR: Kopyeva, L. I.

ORG: Institute for Atmospheric Physics, AN SSSR (Institut fiziki zemli, AN SSSR)

TITLE: Statistical characteristics of the vertical structure of the coefficient of aerosol attenuation

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 8, 1968, 895-901

TOPIC TAGS: atmospheric optics, aerosol, aerosol distribution, atmospheric model, atmospheric stratification, atmospheric visibility

ABSTRACT: The coefficient  $\sigma(z)$  of aerosol attenuation as a function of height  $z$  has been measured in the visible region by several investigators by searchlight probes and by aircraft, balloon, and spacecraft measurements (including those by Vostok-6 and Voskhod) up to a height of 40 km. It was found that there is aerosol stratification with respect to attenuation;  $\sigma(z)$  for each successive layer can be considered approximately constant. The author presents data obtained from aircraft measurements carried out by Yu. I. Rabinovich for wavelengths of

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UDC: 551.521.3

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ACC NR: AP8029094

$\lambda = 0.5$  and  $0.7 \mu$  by the expression

$$\sigma_i(z) = \sigma_i(z_i) e^{-(z-z_i)/\beta_i}, \quad (i)$$

where  $i = 1, 2, 3$  refer to three aerosol layers, for which  $\sigma(z_i)$  and  $\beta_i$  are constant. The first layer is at  $0 < z \leq 1.5$ , the second at  $1.5 < z < 3.5$ , and the third at  $3.5 < z < 10$  km.  $\sigma$  and  $\beta$  were calculated for summer and winter separately. The near-ground  $\sigma(z_1)$  decreases from winter to summer almost by a factor of 0.5, and depends little on wavelength; it decreases with  $z$  more slowly in summer than in winter. The decrease of  $\sigma(z)$  with  $z$  in the higher layers does not depend on the season, but depends on  $\lambda$ . The published data must be considered for aerosol attenuation above 10 km. In order to characterize the variation of  $\sigma(z)$ , the method of optimal extrapolation is used. The deviation from the norm of  $\sigma$  at some level is measured and the deviations at other levels are determined from this value using a correlation matrix characterizing the statistical connection of these deviations at various levels and the correlation of deviations at the neighboring levels. The existence of stratification of aerosol attenuation is confirmed statistically. The correlation coefficients in the bottom layer (up to 1.5 km) are small; they increase rapidly in the higher layers. The

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ACC NR: AP8029094

reduction of  $\sigma$  by the method of optimal extrapolation using the measurement of deviation at the ground level shows a considerable scatter of measured values about the regression line; the error is 100 to 200%. If the extrapolation starts from  $z = 1.5$  km, the reduced values deviate by 30 to 50%. A similar variation is obtained by reducing the attenuation on the basis of measurements of relative humidity. Orig. art. has: 5 figures, 3 tables and 6 formulas.

[WA-50; CBE No. 38][604]

SUB CODE: 04/ SUBM DATE: 22Aug67

Card 3/3

ACC NR: AT8019271

SOURCE CODE: UR/3269/68/000/016/0068/0079

AUTHOR: Krivosheyev, V. L.

ORG: none

TITLE: Stationary model of wind distribution with height in the atmospheric boundary layer

SOURCE: Gidrometeorologicheskii nauchno-issledovatel'skiy tsentr SSSR. Trudy, no. 16, 1968. Voprosy gidrodinamicheskogo kratkosrochnogo prognoza pogody i mezometeorologii (Problems of hydrodynamic short-range weather forecasting and mesometeorology), 68-79

TOPIC TAGS: atmospheric wind field, weather forecasting, hydrodynamics, atmospheric boundary layer, atmospheric model

ABSTRACT: An approximation method consisting of expansion of the hydrodynamic equation for the boundary layer in terms of small parameters is used to solve the problem of wind distribution with height in the case of curvilinear isobars (a family of second order curves). The reduced curvatures of the isobars are considered as small parameters. The equation of steady motion of an incompressible fluid in the boundary layer of the earth in the case of a constant mixing coefficient has the form

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UDC: 551.509.32

ACC NR: AT8019271

$$\left. \begin{aligned} u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} + w \frac{\partial u}{\partial z} &= -\frac{\partial \Phi}{\partial x} + lv + \nu \frac{\partial^2 u}{\partial z^2} \\ u \frac{\partial v}{\partial x} + v \frac{\partial v}{\partial y} + w \frac{\partial v}{\partial z} &= -\frac{\partial \Phi}{\partial y} - lu + \nu \frac{\partial^2 v}{\partial z^2} \\ 0 &= \frac{\partial \Phi}{\partial z} \\ \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} + \frac{\partial w}{\partial z} &= 0, \end{aligned} \right\}$$

where  $u, v, w$  are components of the velocity vector,  $l$  is the Coriolis parameter,  $\nu$  is the coefficient of kinematic viscosity, and  $\Phi$  is the geopotential. A system of ordinary nonlinear differential equations relative to the functions  $D, \delta, \Omega, \omega$  and  $H$  is given as

$$\left. \begin{aligned} \dot{Q}' - D' &= D'Q' + H'Q' \\ \dot{D}' + Q' &= A + \frac{1}{2}(D'^2 + \delta'^2 + \omega'^2 - Q'^2) + H'D' \\ \dot{\omega}' - v' &= D'\omega' + H'\omega' \\ \dot{\delta}' + u' &= B + D'\delta' + H'\delta' \\ \dot{H}' + D' &= 0 \end{aligned} \right\}$$

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ACC NR: AT8019271

This system is solved for the boundary condition

$$\left. \begin{aligned} D = \delta = \Omega = \omega = H = 0 \\ D, \delta, \Omega, \omega, H \end{aligned} \right\} \begin{aligned} &\text{for } z=0 \\ &\text{for } z \rightarrow \infty \end{aligned}$$

The approximate solution of the system is

$$\begin{aligned} \Omega &= \Omega_{10}A + \Omega_{20}\frac{A^2}{2} + \Omega_{02}\frac{B^2}{2}; \\ D &= D_{10}A + D_{20}\frac{A^2}{2} + D_{02}\frac{B^2}{2}; \\ \omega &= \omega_{01}B + \omega_{11}AB; \\ \delta &= \delta_{01}B + \delta_{11}AB; \\ H &= H_{10}A + H_{20}\frac{A^2}{2} + H_{02}\frac{B^2}{2}, \end{aligned}$$

where

$$\begin{aligned} \Omega_{10} &= 1 - e^{-\zeta} \cos \zeta; \quad D_{10} = -e^{-\zeta} \sin \zeta; \quad \omega_{01} = \Omega_{10}; \quad \delta_{01} = D_{10}; \\ D_{20} &= -\zeta e^{-\zeta} \cos \zeta - \frac{1}{5} e^{-\zeta} (\cos \zeta - 7 \sin \zeta) + \frac{1}{5} e^{-\pi}; \end{aligned}$$

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ACC NR: AT8019271

$$\begin{aligned} D_{02} &= \frac{1}{2} \zeta e^{-\zeta} (\cos \zeta - \sin \zeta) - \frac{1}{5} e^{-\zeta} (2 \cos \zeta + \sin \zeta) + \frac{2}{5} e^{-\pi}; \\ \Omega_{20} &= -1 + \zeta e^{-\zeta} \sin \zeta + \frac{1}{5} e^{-\zeta} (7 \cos \zeta + \sin \zeta) - \frac{2}{5} e^{-\pi}; \\ \Omega_{02} &= 1 - \frac{1}{2} \zeta e^{-\zeta} (\cos \zeta + \sin \zeta) - \frac{2}{5} e^{-\zeta} (3 \cos \zeta - \sin \zeta) + \frac{1}{5} e^{-\pi}; \\ \delta_{11} &= -\frac{1}{4} \zeta e^{-\zeta} (\cos \zeta + \sin \zeta) - \frac{1}{10} e^{-\zeta} (\cos \zeta + 3 \sin \zeta) + \frac{3}{10} e^{-\pi}; \\ \omega_{11} &= -\frac{1}{4} \zeta e^{-\zeta} (\cos \zeta - \sin \zeta) + \frac{1}{10} e^{-\zeta} (\cos \zeta + 3 \sin \zeta) - \frac{1}{10} e^{-\pi}; \\ H_{20} &= -\frac{7}{5\sqrt{2}} + \frac{1}{5\sqrt{2}} [5\zeta e^{-\zeta} (\sin \zeta - \cos \zeta) + e^{-\zeta} (13 \sin \zeta + 6 \cos \zeta) + e^{-\pi}]; \\ H_{02} &= -\frac{7}{10\sqrt{2}} - \frac{1}{12} \left[ \zeta e^{-\zeta} \sin \zeta + \frac{1}{10} e^{-\zeta} (3 \sin \zeta + 11 \cos \zeta) - \frac{2}{5} e^{-\pi} \right]. \end{aligned}$$

A solution by the method of stationarity is given in the form:

$$\left. \begin{aligned} \Omega_i + D_i &= -D\Omega - H\Omega_i + \Omega_{ii}; \\ D_i - \Omega &= -A + \frac{1}{2} (D^2 + \delta^2 + \omega^2 - \Omega^2) - HD_i + D_{ii}; \end{aligned} \right\}$$

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ACC NR: AT8019271

$$\begin{aligned} \omega_1 + \delta &= -C - D\omega - H\omega_z + \omega_{zz}; \\ \delta_1 - \omega &= -B - D\delta - H\delta_z + \delta_{zz}; \\ H_z + D &= 0; \\ A &= \frac{\Phi_{20} + \Phi_{02}}{l^2}; \quad B = \frac{\Phi_{20} - \Phi_{02}}{l^2}; \\ C &= \frac{2\Phi_{11}}{l^2}. \end{aligned}$$

for the limiting conditions

$$\begin{aligned} \Omega = D = \omega = \delta = H &= 0 & \text{for } z=0; \\ D=0; \delta = -C; \omega = B & & \text{for } z \rightarrow \infty. \end{aligned}$$

For  $\Omega$  at infinity:

$$\Omega_\infty = \bar{\Omega} = -1 + \sqrt{1 + 2A + B^2 + C^2}.$$

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ACC NR: AT8019271

Graphs of the plane divergence  $D'$  for the boundary layer of a thickness of 1.5 km for linear and nonlinear cases are presented. Orig. art. has: 6 figures and 18 formulas. [WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001

Card 6/6



ACC NR: AR8029221

SOURCE CODE: UR/0169/68/000/002/B039/B039

AUTHOR: Kulikov, G. I.

TITLE: Vertical motions in the atmosphere

SOURCE: Ref. zh. Geofizika, Abs. 2B331

REF SOURCE: Uch. zap. Permsk. un-t, No. 169, 1967, 115-132

TOPIC TAGS: atmospheric wind field, atmospheric turbulence, wind velocity, vertical current

ABSTRACT: An analysis is made of a series of magnitudes of the vertical component of wind speed, determined by different formulas and by different methods, and also of the accuracy of determination of vertical velocity as a function of the method of derivative calculations. A formula, presented for the determination of vertical velocity during polytropic processes, is based on the equations of discontinuity and heat influx. Because of the poor reliability of existing methods of determining vertical velocity, direct measurement of these magnitudes at a dense and extensive network of stations is proposed. The similarity theory is used to demonstrate the dependence of vertical velocity magnitudes on the characteristic scale of exchange and the characteristic scale of the horizontal component of the wind vector. Using this latter, the author

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UDC: 551.558.2

ACC NR: AR8029221

discusses two classes of vertical motions: 1) scalar vertical motions having velocities of  $10^{-3}$  to  $10^{-4}$  m/sec, which vary in stability with time and in homogeneity over large areas having characteristic extents of  $10^7$ — $10^8$  m, caused by dynamic factors (instability, baroclinicity, etc.) and 2) vertical mesomotions developing in areas having characteristic lengths of  $10^3$ — $10^4$  m. Their magnitudes are commensurate with the wind speed. This velocity is unsteady. Mesoscale vertical motions are caused by convection and orographic situation. [Translation of abstract]

[WA-50; CBE No. 38] [ER]

SUB CODE: 04

ACC NR: AP8024055

SOURCE CODE: UR/0362/68/004/006/0586/01

AUTHOR: Mal'bakhov, V. M.; Gutman, L. N.

ORG: Computer Center, Siberian Department, Academy of Sciences SSSR  
(Vychislitel'nyy tsentr, Sibirskoye otdeleniye, Akademiya nauk SSSR)

TITLE: Nonstationary problem concerning mesoscale atmospheric vortices  
with vertical axes

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 6,  
1968, 586-598

TOPIC TAGS: atmospheric wind field, atmospheric thermodynamics,  
atmospheric turbulence, atmospheric vortex

ABSTRACT: A nonstationary model of mesoscale vortices with a vertical  
axis (dust devils, whirlwinds, water spouts, tornadoes) is constructed  
on the basis of a numerical solution of nonlinear equations of the  
thermodynamics of the atmosphere. It is assumed that a vortex develops  
from an already-developed thermal as a result of vertical instability  
of the atmosphere if an external rotating impulse sets in. On the  
assumption of axial symmetrical motion there are obtained in cylindrical  
coordinates  $r, z$ , the following equations of a mesoscale vortex

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UDC: 551.511.32:551.515.3

ACC NR: AP8024055

$$\begin{aligned}\frac{\partial w}{\partial t} + u \frac{\partial u}{\partial r} + w \frac{\partial w}{\partial z} &= R\theta_0 \frac{\partial}{\partial z} \left( \frac{p'}{\rho} \right) + \lambda \theta + \frac{\mu}{r} \frac{\partial}{\partial r} r \frac{\partial w}{\partial r} + \nu \frac{\partial^2 w}{\partial z^2}, \\ \frac{\partial v}{\partial t} + u \frac{\partial v}{\partial r} + w \frac{\partial v}{\partial z} + \frac{uv}{r} &= \mu \frac{\partial}{\partial r} \left( \frac{1}{r} \frac{\partial v}{\partial r} \right) + \nu \frac{\partial^2 v}{\partial z^2}, \\ \frac{\partial \theta}{\partial t} + u \frac{\partial \theta}{\partial r} + w \frac{\partial \theta}{\partial z} &= \alpha w + \frac{\mu}{r} \frac{\partial}{\partial r} r \frac{\partial \theta}{\partial r} + \nu \frac{\partial^2 \theta}{\partial z^2}, \\ \frac{v^2}{r} &= R\theta_0 \frac{\partial}{\partial r} \left( \frac{p'}{\rho} \right), \quad \frac{\partial ur}{\partial r} + \frac{\partial wr}{\partial z} = 0.\end{aligned}$$

where  $u, v, w$  are radial, rotational (tangential), and vertical components  
of velocity,  $\theta$  and  $p$  are temperature and pressure deviations from their  
values  $\theta(z)$  and  $P(z)$  at the initial moment,  $\theta_0 = \text{const}$  is the temperature  
averaged for the entire layer of the atmosphere,  $R$  is the gas constant,  
and  $\lambda = g/\theta_0$  is the convection parameter

$$\alpha = \begin{cases} \gamma(z) - \gamma_s, & q < q_s, \\ \gamma(z) - \gamma_p, & q \geq q_s. \end{cases}$$

where  $\gamma_d, \gamma_p$  are dry- and moist-adiabatic gradients and  $q, q_s$  are specific  
humidity and saturated specific humidity. The equations

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$$\frac{dK_w}{dt} = Q - P - D_w, \quad \frac{d\Pi}{dt} = Q_s - D_s,$$

$$\frac{dK_v}{dt} = P - D_v,$$

are derived, where

$$K_w = \int \frac{w^2}{2} dm, \quad K_v = \int \frac{v^2}{2} dm, \quad \Pi = \int \frac{\phi^2}{2} dm,$$

$$P = - \int \frac{uv^2}{r} dm, \quad Q = \int w \phi dm, \quad Q_s = \int a w \phi dm,$$

$$D_w = \int \left[ \left( \frac{\partial w}{\partial r} \right)^2 + \epsilon \left( \frac{\partial w}{\partial z} \right)^2 \right] dm, \quad D_s = \int \left[ \left( \frac{\partial \phi}{\partial r} \right)^2 + \epsilon \left( \frac{\partial \phi}{\partial z} \right)^2 \right] dm,$$

$$D_v = \int \left[ \left( \frac{\partial v}{\partial r} + \frac{v}{r} \right)^2 + \epsilon \left( \frac{\partial v}{\partial z} \right)^2 \right] dm \quad \left( \int A dm = \int_0^\infty \int_0^\infty A r dr dz \right)$$

and

$$\frac{d}{dt} \int v r dm = - \int_0^\infty [(ur)_{r=r_m} + 2](vr)_{r=r_m} dz, \quad \frac{d}{dt} \int \phi dm = \int a w dm.$$

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These equations can be used to evaluate the numerical solution of the problem which is accomplished by the method of fractional intervals developed by V. L. Katkov and G. I. Marchuk. The first semi-interval is

$$\frac{1}{2} \frac{\partial v}{\partial t} + \left( u - \frac{1}{r} \right) \frac{\partial v}{\partial r} + \left( u + \frac{1}{r} \right) \frac{v}{r} - \frac{\partial^2 v}{\partial r^2} = 0,$$

$$\frac{1}{2} \frac{\partial w}{\partial t} + \left( u - \frac{1}{r} \right) \frac{\partial w}{\partial r} - \frac{\partial^2 w}{\partial r^2} = 0, \quad \frac{1}{2} \frac{\partial \phi}{\partial t} + \left( u - \frac{1}{r} \right) \frac{\partial \phi}{\partial r} - \frac{\partial^2 \phi}{\partial r^2} = 0,$$

and the second semi-interval is

$$\frac{1}{2} \frac{\partial v}{\partial t} + w \frac{\partial v}{\partial z} - \epsilon \frac{\partial^2 v}{\partial z^2} = 0,$$

$$\frac{1}{2} \frac{\partial w}{\partial t} + w \frac{\partial w}{\partial z} - \epsilon \frac{\partial^2 w}{\partial z^2} = - \frac{\partial \phi}{\partial z} + 0,$$

$$\frac{1}{2} \frac{\partial \phi}{\partial t} + w \frac{\partial \phi}{\partial z} - \epsilon \frac{\partial^2 \phi}{\partial z^2} = a w.$$

The diagnostic equation is derived in the form

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$$u = -\frac{1}{r} \int_0^r r \frac{\partial w}{\partial z} dr, \quad p = -\int_0^r \frac{v^2}{r} dr.$$

The parameters of the problem are given the values

$$a_0 = 3 \cdot 10^{-3} \text{ degr/M}, \quad v = u = 10 \text{ m}^2/\text{sec}, \quad h = 3 \text{ km} \\ \lambda = 3 \cdot 10^{-2} \text{ m/sec}^2 \text{degr}, \quad R_0 = 10^5 \text{ m}^2/\text{sec}^2, \quad P = 10^3 \text{ mb}.$$

By inserting these values into

$$t = \frac{1}{\gamma a_0 \lambda} \bar{t}, \quad r = \sqrt{\frac{\mu}{\gamma a_0 \lambda}} \bar{r}, \quad z = h \bar{z}, \quad u = \bar{u} \gamma \mu \gamma a_0 \lambda, \\ w = h \bar{w} \gamma a_0 \lambda, \quad v = h \bar{v} \gamma a_0 \lambda, \quad \phi = a_0 h \bar{\phi}, \\ a = a_0 \bar{a}, \quad R \theta_0 \frac{p'}{p} = a_0 \lambda h^2 \bar{p}.$$

there is obtained

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ACC NR: AP8024055

$$t = 100 \text{ sec } \bar{t}, \quad r = 30 \text{ m } \bar{r}, \quad z = 1 \text{ km } \bar{z}, \quad u = 0.5 \frac{\text{m}}{\text{sec}} \bar{u}.$$

$$w = 30 \frac{\text{m}}{\text{sec}} \bar{w}, \quad v = 30 \frac{\text{m}}{\text{sec}} \bar{v}, \quad p' = 10 \text{ mb } \bar{p}, \quad \phi = 10^\circ \bar{\phi}.$$

These correspond to various mesoscale vortices. The spatial temporal structure, energy and mechanism of the vortex model are examined and five stages of the life of a vortex are described. The authors thank G. I. Marchuk, G. P. Kurbatkin and M. A. Gol'dshtik for their advice and discussion. Orig. art. has: 4 figures and 24 formulas.

[WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: 13Jun67/ ORIG REF: 010/ OTH REF: 017

Card 6/6

ACC NR: AT8027262

SOURCE CODE: UR/2599/68/000/074/0078/0084

AUTHOR: Mikhaylenko, N. M.; Polovina, I. P. (Candidate of geographical sciences)

ORG: none

TITLE: Cloud suitability for seeding at different distances from a front

SOURCE: Kiyev. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut. Trudy, no. 74, 1968. Voprosy aktivnykh vozdeystviy na oblaka i tumany (Problems of cloud and fog modification), 78-84

TOPIC TAGS: cloud seeding, weather modification, fog dispersal

ABSTRACT: This is a progress report on the author's research and experiments on cloud seeding. To investigate the overall possibilities for increasing precipitation by cloud seeding it is important to know the frequency of favorable (for this purpose) conditions in various geographical areas. The paper describes these conditions for four regions in the Ukraine. The study is based on data obtained during 858 airplane soundings in frontal clouds which produced precipitation during cold seasons and on synoptic data for 1953-1962. The 300-meter cloud

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UDC: 551.509.617

ACC NR: AT8027262

layers in droplet stage having maximum temperatures below  $-4^{\circ}$  were considered suitable for seeding. Tabulated data include: frequency of favorable conditions for seeding in relation to the type of frontal mass and distance from the front; frequency of various thicknesses of clouds suitable for seeding; frequency of various mean temperatures (in cloud layers suitable for seeding) occurring in warm fronts, cold fronts, occlusions, and stationary fronts. It is concluded that the frequency of conditions favorable for seeding at the warm and cold fronts shows practically no variation with the distance from the front. At the fronts with waves and at occlusions, the frequency of favorable conditions decreases with distance from the front line. Most frequent favorable conditions for seeding are observed at cold fronts and occlusions. The average thickness of clouds suitable for seeding is 0.96-1.10 km for all fronts, except the stationary front. The layers of Ns and As clouds are suitable for seeding in 85-90% of cases, regardless of the distance from the fronts. These clouds usually have mean temperatures of  $-12^{\circ}$  and above and their average water content is 0.15-0.17 g/m<sup>3</sup>. Orig. art. has: 2 figures and 6 tables.

[WA-50; CBE No. 38][449]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 003

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ACC NR: AT8026907

SOURCE CODE: UR/2531/68/000/232/0106/0110

AUTHOR: Milevskiy, V. Yu.

ORG: none

TITLE: Relationship of wind speed rose diagrams to roses for the exposure of station wind vanes

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 232, 1968. Klimaty zemnogo shara (Climates of the earth). 106-110

TOPIC TAGS: atmospheric wind field, weather station exposure, wind rose, wind speed rose diagram, wind field prediction

ABSTRACT: A discussion is presented on the dependence of the probability of winds of various wind speeds (0-1, 2-5, 6-10, 11-15, and >15 m/sec) by 8 directions on wind vane data measured at various weather stations classified by degrees of exposure and located in the middle latitudes of the European USSR. Data are presented on the winds registered at several weather stations located in such varying types of terrain as on the open, gradual slopes of a large river, on a plain far from a water body, with sheltered and unsheltered surroundings (Bezenchuk, Gor'kiy, Rybinsk), and under different pressure gradient conditions. Other stations

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UDC: 551.582:551.552

ACC NR: AT8026907

mentioned include the Markhot Pass, Novorossiysk, Sochi, and Sukhumi.

Orig. art. has: 8 tables.

[WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 006

ACC NR: AT8025824

SOURCE CODE: UR/3201/67/000/004/0041/0047

AUTHOR: Miroshkina, A. N.; Petrova, G. M.

ORG: none

TITLE: The problem of the settling of an artificial aerosol cloud in the atmosphere

SOURCE: Leningrad. Institut prikladnoy geofiziki. Trudy, no. 4, 1967. Zakonomernosti rasseyaniya aerosol'nykh chastits v atmosfere (Dispersion patterns of aerosol particles in the atmosphere), 41-47

TOPIC TAGS: air pollution, aerosol settling, aerosol dispersion

ABSTRACT: An analysis is made of data obtained during 29 experiments carried out in 1959-1960 and in 1963 at  $h = 100-300$  m (from stationary sources and aircraft) to determine the rate of settling, the movement along trajectories ( $\omega_2$ ), and the positions, extent, and distance from the source of surface concentration maxima ( $\omega_1$ ) of artificial aerosol clouds. The aerosol used consisted of luminescent particles of polymethylmethacrylate ( $d$  of no more than  $80 \mu$ ) released into the atmosphere at various speeds and in various weather conditions (different conditions of atmospheric stratification and wind

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ACC NR: AT8025824

speeds). Analysis of these data indicates the following: 1) For finely dispersed particles, introduced into the atmosphere in small concentrations or under experimental conditions in which the initial interaction of the particles with the atmosphere ceases almost immediately, the surface fallout concentration is maximum at a distance  $X_2$  from the source and depends on the vertical coefficient of particle dispersion. Here, the formula

$$x_{\max} = x_k \left[ \sqrt{\left( \mu \frac{u^2}{w^2} \right)^2 + 1} - \mu \frac{u^2}{w^2} \right],$$

where  $x_{\text{kin}} = \frac{uH}{w}$  and  $\mu$  is a parameter which depends on stratification, can be used to calculate both the position of the turbulent maximum  $X_2$  and the surface concentration maximum — here about 30-40 times the height of the source. 2) When the initial volume of particles discharged is large, especially those dispersed from aircraft into an unstably stratified atmosphere, the surface concentration maximum is much closer. If the aerosol cloud settles fast enough, a second surface concentration maximum does not occur. The descent of the cloud induces and increases atmospheric circulation in the cloud and sometimes leads to total entrainment of the medium and retarding particle dispersion. When the source is low, the aerosol cloud persists

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ACC NR: AT8025824

for 10—15 min. As it settles to the ground, it disperses, forming a trail in the direction of the wind. If the source is about 100 m high, only upper-level cloud motions can be visually observed. When cloud motion is at a rate of  $\sim 0.5$  m/sec and the wind speeds are  $\sim 5$  m/sec, a close-in surface concentration maximum develops at a distance of about 10 times the height of the source. With higher sources ( $h \sim 1000$  m), there are two surface concentration maxima. Atmospheric stratification is adjudged to be the most important factor controlling the behavior of an aerosol cloud, i.e., in unstable air, the average settling rate is 0.6 m/sec, and in stable air it varies in the 0.2—0.3 m/sec range. Orig. art. has: 3 figures and 2 tables.  
[WA-50; CBE No. 38][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 001

Card 3/3

ACC NR: AR8029219

SOURCE CODE: UR/0169/68/000/002/B019/B019

AUTHOR: Mkhitarian, A. M.

TITLE: Effect of vertical currents and other factors on evaporation near a coastal zone

SOURCE: Ref. zh. Geofizika, Abs. 28179

REF SOURCE: Tr. Arm. n.-i. in-ta vodn. probl. i gidrotekhn., 1967, 1[6], 235-242

TOPIC TAGS: atmospheric turbulence, vertical current, turbulent exchange, water evaporation, advective heat transfer, humidity

ABSTRACT: This study demonstrates that evaporation in a turbulent atmosphere, or inflows of moisture in a given volume of air, is caused by vertical turbulent exchange and by ordered vertical fluxes and vertical currents produced by advection, unstable conditions, natural advection, and horizontal turbulent exchange. The sequence of the contribution of these factors to the amount of evaporation from a water surface is determined. The effect of vertical and horizontal turbulent exchange, as well as of advective transfer and the stratification of the lower layer of the atmosphere, is definite, i.e., the intensification of any of these factors tends to increase evaporation. The effect of vertical

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UDC: 551.51:551.573

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ACC NR: AR8029219

currents and of unstable conditions may be both positive and negative and depends on the sign of the vertical speed, the type of humidity profile over the coastal waters, and also on the increase or decrease with time of the humidity of the inflowing air. Vertical turbulent exchange is the main contribution in the evaporation process. Under certain conditions, the other factors cancel out each other. For small and average size water bodies, especially those located in mountainous regions, failure to take vertical currents into account may cause errors of the order of 10—15% in evaporation calculations. [Translation of abstract]. [WA-50; CBE No. 38] [ER]

SUB CODE: 04

Card 2/2

ACC NR: AT8029312

SOURCE CODE: UR/2531/68/000/224/0193/0201

AUTHOR: Morachevskiy, V. G.; Novosel'tsev, Ye. P.; Pastukh, N. V.

ORG: none

TITLE: Radiational heat influx into water aerosols in the near-IR region of the spectrum

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 224, 1968. Fizika oblakov i aktivnykh vozdeystviy (Physics of clouds and cloud seeding), 193-201

TOPIC TAGS: atmospheric physics, heat radiation, aerosol, fog, IR radiation, water aerosol, turbulent diffusion

ABSTRACT: A theoretical solution is presented for the solution of the problem of the influx of heat in the near-IR region into an aerosol system. In the problem the aerosol system is a fog 100 m thick, its water content is  $0.1 \text{ g/m}^3$ , its water vapor is  $6 \text{ g/m}^3$ , the mean radius of the cloud droplets is  $6.256 \mu$ , and the heat source is located on the ground and dispenses heat uniformly throughout the section. The spectral composition of the radiation is equivalent to that of a black body at  $T = 333^\circ\text{K}$ ,  $T = 700^\circ\text{K}$ , and  $T = 1000^\circ\text{K}$ . The significance of this

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UDC: 551.575:536.24

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ACC NR: AT8029312

influx is compared with that caused by turbulent diffusion. Results are summarized for fog-chamber tests carried out at the Main Geophysical Observatory—GGO (25 tests during which the fog was dispersed naturally and 66 tests with artificial dispersal (gas heater)); horizontal IR radiation was measured in 21 experiments, vertical IR (up) in 17 experiments, and IR (down), in 28 tests. The results showed that the average dispersal time of the naturally dispersed fog was 30 min, and was 1.5—2.0 faster when IR radiation was present. Field tests were conducted by the GGO at Voyeykovo to study the nature of the diminution of IR radiation in both natural fog and in non-foggy conditions. Air temperatures ranged from 2° to 10°C, with the heat supplied by a 10,000 cc/hr gas heater ( $\lambda_{\max} \sim 3 \mu$ ). The qualitative differences between the results obtained from the chamber studies and those found in the field studies were negligible. Orig. art. has: 6 figures, 7 tables, and 5 formulas. [WA-50; CBE No. 38][ER]

SUB CODE: 04, 20/ SUBM DATE: none/ ORIG REF: 002

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ACC NR: AT8025823

SOURCE CODE: UR/3201/67/000/004/0005/0040

AUTHOR: Petrova, G. M.; Miroshkina, A. N.

ORG: none

TITLE: Patterns of aerosol particle dispersion in the free atmosphere

SOURCE: Leningrad. Institut prikladnoy geofiziki. Trudy, no. 4, 1967. Zakonomernosti rasseyaniya aerol'nykh chastits v atmosfere (Dispersion patterns of aerosol particles in the atmosphere), 5-40

TOPIC TAGS: free atmosphere, aerosol dispersion, atmospheric pollution, pollutant fallout concentration, atmospheric turbulence, turbulent diffusion

ABSTRACT: A comprehensive description and analysis are presented of experimental studies of the dispersal and fallout of solid particles (luminescent sand particles, 100—1000  $\mu$  in diameter, and luminescent plastic particles, 30—100  $\mu$  in diameter) dispersed at heights of 500—800 m in the free atmosphere and falling out at a rate of from 0.1 to 3 m/sec. The traces of the aerosol particle fallout were measured to determine the relationships between their principal characteristics (surface concentrations, positions of zones of maximum particle concentration, amount of surface concentration dispersion) and total amount of

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ACC NR: AT8025823

particles ejected, the wind speed, and rate of particle fallout. The information presented includes: description of experimental procedures (preparation of luminescent particles and location, description, period of operation and sizes of test sites); methods of aerological observations (pibal, aircraft); and identification and grouping of four types of atmospheric stratification. The field results are graphed, tabulated, and summarized in detail. Empirical relationships investigated related to analysis of the practical utilization of the equation for turbulent diffusion and the coefficient of turbulent mixing in the derivation of a simple empirical equation adequate for use in calculating the surface concentrations of pollutants dispersed into the free atmosphere from high sources, i. e. to determine the empirical relationships and to postulate the problem of determining the parameters of the fallout pattern of pollutant particles as functions of the initial experimental data:  $H$  - the height of the source,  $\omega$  - the rate of particle settling,  $u$  - the speed of the "mean" wind, and  $Q$  - the number of particles ejected at the source (at rates ranging from 0.07 - 3 m/sec and  $H = 500 - 8000$  m). Calculation procedures developed include those for the determination of the positions of maximum particle concentrations ( $x_{max}$ ), dispersion distribution of surface particle concentration in and against the wind direction, and surface particle concentrations at the distance  $x = x_{max}$ . Other determinations were made for the coefficients of turbulent disper-

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ACC NR: AT8025823

sion of particles and for vertical diffusion. Orig. art. has: 13 figures, 13 tables, and 16 formulas. [WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 001

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ACC NR: AF8029082

SOURCE CODE: UR/0362/68/004/008/0803/0810

AUTHOR: Pinus, N. Z.

ORG: Central Aerological Observatory (Tsentral'naya aerologicheskaya observatoriya)

TITLE: Energy of macroturbulent motion in the atmosphere

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 8, 1968, 803-810

TOPIC TAGS: atmospheric boundary layer, wind profile, wind velocity, atmospheric motion, atmospheric turbulence

ABSTRACT: The results of rawinsonde measurements of space-time properties of the turbulence of air currents on a synoptic scale obtained at the Central Aerological Observatory near Moscow from March 1965 to March 1966 are reported. Average wind velocities, dispersion of their fluctuations, autocorrelation functions, and spectral densities were calculated for each season for various heights from ground level up to 20 km in small increments of height. The isopleths are given graphically for the yearly variation of kinetic energy  $E$  of the unit mass averaged over small level increments, and of the kinetic energy  $E'$  of the

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UDC: 551.551.5

ACC NR: AP8029082

fluctuations, as the sum of zonal and meridional energy components.  $E$  and  $E'$  have similar trends, particularly in the lower troposphere; both have a minimum in summer up to 9-10 km, and both have a summer minimum at 18-20 km.  $E'/E$  is larger in summer than in winter at all heights, the difference being greatest in the stratosphere. Spectral densities  $\phi(\Omega)$  of macroturbulent motions are given for four seasons for various levels ( $\Omega$  = wave number =  $2\pi/L$ , where  $L$  is the average wavelength fluctuation). It is described by the power law  $\phi = \Omega^{-n}$ , where  $n$  is close to 5/3. For  $\Omega = 5 \times 10^{-3}$  rad/km,  $\phi$  is  $10^4$ - $10^5$  km<sup>2</sup>hr<sup>-2</sup>/rad, km<sup>-1</sup>.  $\phi$  has two maxima in all seasons: one at 500-1000 m caused by turbulent friction in the boundary layer and another at 8-10 km caused by baroclinicity of the atmosphere and large vertical gradients of wind in the upper troposphere.  $\phi$  drops rapidly with height in the stratosphere. The regularities found for macroturbulence (the 5/3 law) can be extrapolated toward larger  $\Omega$  (small  $L$ ); this, however, should be done with caution. This extrapolation is of interest with respect to aircraft bumping, for which small-scale turbulence ( $L = 3000$  m) is of importance. Orig. art. has: 5 figures and 5 formulas.

[WA-50; CBE No. 38][604]

SUB CODE: 04/ SUBM DATE: 28Aug67

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ACC NR: AM8028847

Monograph

UR/

Plaude, N. O.

Research on the ice-forming properties of silver and lead-iodide aerosols (Issledovaniya I'doobrazuvushchikh svoystv aerorozley yodistogo serebra i yodistogo svintsa). [Moscow. Gidrometeoizdat, 1967. 88 p.] illus., tables, biblio. (At head of title: Glavnoye Upravleniye Gidrometeorologicheskoy Sluzhby pri Sovete Ministrov SSSR).

SERIES NOTE: Trudy tsentral'noy Aerologicheskoy Observatorii, No. 80

TOPIC TAGS: atmospheric physics, weather modification, cloud seeding, aerosol, nucleation, aerosol generator, fog, silver iodide, lead iodide, cloud chamber, condensation nuclei

PURPOSE AND COVERAGE: This monograph is intended for the use of specialists in the field of cloud physics, aerosols, artificial cloud seeding, and fog dispersal. It is also of interest to scientists in various scientific disciplines dealing with problems of new phase formations. Experimental data on the ice-forming properties of silver and lead iodide aerosols are systematized and summarized and an attempt is made to attain a better and more complete understanding of the "absolute" limits of the ability of these substances to produce

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UDC: 541.182.2/3+551.509.6

ACC NR: AM8028847

ice nuclei. Emphasis in the study is on efforts to define as precisely as possible the ice-forming capabilities and processes of lead and silver iodide aerosols required both for practical applications (cloud seeding, fog dispersal, etc.) and for future improvement of theories on the mechanisms involved in heterogeneous ice formation. The first chapter summarizes the status of the theory and laws of heterogeneous ice formation on aerosol particles. The second chapter describes laboratory apparatus (20-liter chamber) and techniques used at the Central Aerological Observatory to carry out quantitative studies. The role of several factors, such as temperature gradients, water content of fog, and changes in volume and humidity when aerosols are introduced into the chamber, which affect laboratory measurements, are also discussed. The third chapter presents the results of experiments with these aerosols generated in laboratory equipment under varying temperature conditions, i.e., varying conditions of evaporation and condensation, rate and type of generation, presence of atmospheric oxygen, water and water vapor, and IR radiation. Chapter IV deals with the behavior of iodide aerosols in a super-cooled fog. Orig. art. has: 35 figures, 15 tables, and 4 formulas.

[WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: 06Dec67/ ORIG REF: 039/ OTH REF: 060

Card

2/2

ACC NR: AT8027258

SOURCE CODE: UR/2599/68/000/074/0032/0043

AUTHOR: Polovina, I. P. (Candidate of geographical sciences)

ORG: none

TITLE: The results of work on the dispersion of supercooled clouds and fogs and the feasibility of its application over the airports in the Ukraine

SOURCE: Kiyev. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut. Trudy, no. 74, 1968. Voprosy aktivnykh vozdeystviy na oblaka i tumany (Problems of cloud and fog modification), 32-43

TOPIC TAGS: cloud seeding, fog, chemical dispersion, fog dispersal

ABSTRACT: Numerous experiments on the dispersion of supercooled clouds and fogs are described. The experiments were conducted over airports of the Ukrainian SSR starting in the winter of 1964-1965. The author supervised experiments over the Dnepropetrovsk airport under the auspices of the Ukrainian Hydrometeorological Research Institute. Experiments made in the winters of 1964, 1965, and 1966 have demonstrated that dispersion of fog and better visibility resulted every time. The

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UDC: 551.509.615

ACC NR: AT8027258

1966 experiments show that effective dispersion of fog can be achieved even at temperatures above 3°. IL-14 airplanes were used for carrying the ADG-1 dry-ice granulating and seeding device. During these experiments improved meteorological conditions made it possible to handle an additional 106 flights at the airports, with a savings of over 40,000 rubles. However, a number of characteristics of fogs and low-clouds, which can be effectively seeded, had to be determined before planning such operations for profit. Fog and low-cloud observational data of 9 air weather stations (including RAOB, flight observations, and synoptic charts) for the 1954-1965 period were analyzed. It was found that clouds with bases below 100 m and temperatures of -2° and lower change into fog. Actually, several transformations from cloud into fog and back again were observed in a short period of time. In individual cases, fog was observed at -28° and low clouds at air temperatures of -20°. Dispersible types of fogs and low clouds are observed from

Table 1. Number of hours with dispersible fog and low clouds occurring during the cold season

Airport	Fogs			Low clouds			Fogs and low clouds		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
Donetsk	96	13	166	134	74	277	234	110	407
Khar'kov	42	6	91	34	5	64	75	16	134
Poltava	88	5	205	22	1	47	110	21	318
Zaporozh'ye	42	3	120	16	1	64	58	3	134

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ACC NR: AT8027258

Table 1. (Cont.)

Kiev	46	15	102	43	8	122	89	34	224
Borispcl'	37	6	59	33	13	81	70	19	135
Vinnitsa	86	14	190	26	4	69	112	18	248
L'vov	52	20	105	29	5	43	91	42	127
Odessa	13	0	38	12	0	46	25	3	71

Table 2. Frequency (in %) and duration of dispersible fogs and low clouds

Airport	Duration in hr								No. of periods
	—3	4—6	7—9	10—12	13—15	16—18	>18	Max.	
Fogs									
Donetsk	58.6	18.9	10.6	4.1	3.2	1.4	3.2	47	217
Khar'kov	62.7	18.7	9.3	3.5	0.8	—	—	15	118
Poltava	40.0	24.4	15.5	10.0	5.6	0.6	3.8	25	160
Zaporozh'ye	32.8	41.0	13.7	4.2	4.2	—	4.1	49	73
Kiev	38.6	33.7	12.1	7.2	2.4	2.4	3.6	31	85
Borispol'	52.3	31.8	9.1	—	4.5	2.3	—	17	44
Vinnitsa	36.2	29.1	13.9	10.2	2.8	2.8	5.0	42	138
L'vov	50.8	16.2	12.1	12.1	0.9	4.3	3.6	32	115
Odessa	42.8	32.1	10.8	10.8	3.5	—	—	13	22
Low clouds									
Donetsk	54.6	20.9	7.1	4.5	1.6	1.1	0.4	44	429
Khar'kov	72.2	18.9	5.7	0.8	1.6	0.8	—	17	122
Poltava	67.7	11.9	11.9	—	5.1	1.7	1.7	19	59
Zaporozh'ye	71.6	17.0	7.6	1.9	1.9	—	—	15	53
Kiev	46.2	30.1	10.7	6.5	3.2	1.1	2.2	29	93
Borispol'	69.1	24.1	3.4	1.7	1.7	—	—	15	56

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ACC NR: AT8027258

Table 2. (Cont.)

Vinnitsa	64.3	19.2	8.2	1.4	4.1	4.1	1.4	19	73
L'vov	68.4	20.1	5.3	4.2	1.0	1.0	—	18	95
Odessa	50.0	28.4	10.8	10.8	—	—	—	11	28
Fogs and low clouds									
Donetsk	50.0	21.1	10.6	5.5	5.1	3.8	4.9	65	433
Khar'kov	47.5	25.9	9.9	11.1	3.1	1.9	0.6	24	162
Poltava	35.9	22.5	15.7	13.8	6.7	0.6	5.8	35	179
Zaporozh'ye	33.9	30.3	15.7	6.7	5.6	1.1	6.7	38	85
Kiev	18.4	29.8	22.8	10.6	4.4	5.3	8.7	25	114
Borispcl'	38.7	28.0	7.0	14.0	5.3	1.7	5.3	26	57
Vinnitsa	33.3	26.4	13.8	11.3	5.7	3.8	5.7	35	159
L'vov	29.5	25.6	18.6	11.5	1.6	7.7	5.5	44	128
Odessa	18.6	46.6	20.9	11.6	—	—	2.3	13	43

November through March (see Tables 1 and 2), with the average number of hours varying from 13 (at Odessa) to 96 (at Donetsk). Orig. art. has: 10 tables. [WA-50; CBE No. 38] [449]

SUB CODE: 04/ SUM DATE: none/ ORIG REF: 008

ACC NR: AT8029310

SOURCE CODE: UR/2531/68/000/224/0157/0168

AUTHOR: Preebrazhenskaya, Ye. V.

ORG: none

TITLE: Reaction of finely dispersed ion-exchange resin powders with aqueous aerosols and water vapor

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 224, 1968. Fizika oblakov i aktivnykh vozdeystviy (Physics of clouds and cloud seeding), 157-168

TOPIC TAGS: weather modification, cloud seeding, fog dispersal, aerosol chemistry, aerosol, cloud chamber, meteorologic facility

ABSTRACT: Results are presented of studies carried out in the 110 m<sup>3</sup> cloud (fog) chamber at the Main Geophysical Observatory to investigate the effects of samples of ion-exchange high-molecular compounds (ionites) on the stability of aqueous aerosols at temperatures in the 18—20° range. The samples consisted of 11 types of these compounds and were separated into two fractions by size: average particle diameter of 5—10  $\mu$  and 40—60  $\mu$ , respectively. ShSK silica gel was used to test the reactions in the chamber. The effects of both the

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UDC: 551.509.6

ACC NR: AT8029310

ionites and the silica gel were minor in character, the fog dispersal being accelerated over the rate of natural dispersion by only 10—15% and, rarely, by 20—30%. Sodium chloride, used to compare the action of the ionites with that of hygroscopic particles, in aqueous aerosol stability at positive temperatures, showed that the effectiveness of the NaCl was inferior to both the ionites and the silica gel. Orig. art. has: 8 figures and 2 tables. [WA-50; CBE No. 38][ER]

SUB CODE: 04, 07/ SUBM DATE: none/ ORIG REF: 010

Card 2/2



ACC NR: AT8027070

SOURCE CODE: UR/2531/68/000/197/0019/0038

AUTHOR: Pyatygina, K. V.; Fedorova, E. A.

ORG: none

TITLE: Calculation of vertical velocities averaged by time

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 197, 1968. *Primeneniye gidrodinamicheskikh metodov v prognoze pogod* (Application of hydrodynamic methods in weather forecasting), 19-38

TOPIC TAGS: meteorologic computation, hydrodynamic theory, atmospheric circulation, vertical velocity

ABSTRACT: An analysis and computation are made of a vertical velocity field which was calculated from climatological (long-term) temperature and pressure data as well as from data obtained on these parameters on a monthly basis for a specific year. The method used to calculate the vertical velocities was a variation of that proposed by K. A. Reshetnikova in *Trudy GGO*, no. 97, 1957, and the data used were collected over an area bounded by the 25 and 75° parallels and the 30 and 90° meridians (grid=5° on the meridians and 10° on the parallels). The mean absolute magnitudes were also calculated from the fields of the individual components of the vertical velocities. The results indicated that in all months the total

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UDC: 551.558:551.513

ACC NR: AT8027070

vertical velocity was, on the average, greater than any of the components. In the designated area, the vertical velocities that were determined by dynamic factors were, on the average, greater than those of the velocity components which were determined by orographic factors. Among the vertical velocities induced by dynamic factors, those velocities which developed because of ground friction were the largest; these were followed by those components produced by horizontal exchange. Thereafter, the vertical velocities induced by variations in the Coriolis force with latitude, and those caused by advective eddy velocity, were almost identical in their effects. The annual change in the overall vertical velocity and of its components was analyzed, and the annual amplitudes of both the vertical velocities and of their components were rather large. The mean absolute magnitude of vertical velocity, calculated from the mean monthly data for a specific year, was greater than those calculated from the mean multi-year data for the corresponding months. The vertical velocities were also calculated for the values of the coefficient of horizontal exchange for both the continent and the ocean. Orig. art. has: 5 figures, 9 tables, and 12 formulas. [WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

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Card 2/2

ACC NR: AT8027072

SOURCE CODE: UR/2531/68/000/197/0048/0059

AUTHOR: Pyatygina, K. V.; Fedorova, E. A.; Orlova, L. S.; Kuchumova, L. S.

ORG: none

TITLE: Forecasting wind and temperature fields for several atmospheric levels on the basis of a geostrophic departure chart

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 197, 1968. Primeneniye gidrodinamicheskikh metodov v prognoze pogody (Application of hydrodynamic methods in weather forecasting), 48-59

TOPIC TAGS: geostrophic wind, wind forecasting, atmospheric temperature forecasting, atmospheric wind field, atmospheric temperature field, numeric weather forecasting

ABSTRACT: Results are presented of tests made in 1965 by the Numerical Forecast Methods Division of the Administration of the Northwestern Hydrometeorological Service of an ageostrophic scheme for forecasting wind and temperature fields. The data used were for a four-level atmospheric model (850-, 500-, 300-, and 200- mb levels), solved for a triangular grid graduated into one-hour intervals. Forecasts were given for the wind components  $u$  and  $v$ , and the temperature  $T$ , as were the ageostrophic

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UDC: 551.509:551.557+551.509:551.524

ACC NR: AT8027072

wind components  $u'$  and  $v'$  and the vertical velocity  $\omega$  (for each time interval). Wind and temperature changes with time were calculated for individual derivatives (precomputed in accordance with a Lagrangian variable scheme). It is shown that with this method, the error in predicting a wind speed vector at the 850- and 500- mb levels is considerably smaller than that for the 300- and 200- mb levels; that the ratio of the mean square vectorial error in wind prediction to the mean square values of the wind velocity is smallest for the 500- mb level (0.57) and greatest for the 200- mb level (0.68); that the absolute error in predicting the temperature of the troposphere averages  $1.8^\circ$  and is much larger ( $2.9^\circ$ ) for the 200- mb level; that coefficient of correlation between the actual and predicted temperature variations is greatest for the 850- mb level (0.80) and smallest for the 200- and 300-mb levels (0.66 and 0.67, respectively); and that the relative error of the temperature prediction is greatest for the 300- mb level (0.84) and least for the 850- and 500- mb levels (0.64). On the whole, the method is adjudged to be satisfactory. Orig. art. has: 1 figure and 7 tables.

[WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 010

Card 2/2

ACC NR: AT8025859

SOURCE CODE: UR/2667/67/000/043/0011/0021

AUTHOR: Sapozhnikova, S. A.

ORG: none

TITLE: Experiment to determine the effect of the underlying surface on the variation in wind speed with height in the lower 100 m-layer of the atmosphere

SOURCE: Moscow. Nauchno-issledovatel'skiy institut aeroklimatologii. Trudy, no. 43, 1967. Voprosy klimatologii (Problems of climatology), 11-21

TOPIC TAGS: atmospheric surface boundary layer, atmospheric wind field, wind profile

ABSTRACT: The effect of the characteristics of the underlying surface, its meso-roughness, on the variations of wind speed with height from anemometer height (10 m) to 100 m is investigated for the forest, forest-steppe, and steppe zones of the lowland and hilly territory in the southeastern part of West Siberia. In order to take into account the influences of the prevailing stratification, the analysis was made on the basis of the four median months of the seasons (January, April,

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ACC NR: AT8025859

July, and October) with subsequent averaging. Data from 96 stations were used. The results of calculations of mean long-period wind speed at a height of 100 m and simultaneous wind speeds at a height of 10 m at 0700 and 1900 hr local time for different station terrains, and computation of the ratios ( $R$ ) of velocities at these altitudes during the different seasons and values of  $R$  under different conditions of the location (flat terrain, hill slope, large river, lake) in lowland and hilly regions in the three zones (for the central months of the seasons and on the average), the relationship of forest, forest-steppe and steppe zones, etc., are presented. Considerable differences exist in the dependence of  $R$  on location; even on the basis of averaged data,  $R$  varied from 1.3 to 2.7. In addition to the local characteristics, zonal factors played an important role: in the case of a uniformly sheltered weather station area in a forest zone,  $R$  is almost one and a half times greater than in a steppe zone. An analysis is made of the influence of the location (mesoscale roughness) upon the wind profile in the 100 m layer. Orig. art. has: 1 figure and 7 tables.

[WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 003

Card 2/2

ACC NR: AP8025816

SOURCE CODE: UR/0362/68/004/007/0792/0796

AUTHOR: Shopauskas, K. K.; Gayvoronskiy, I. I.; Styro, V. I.; Vebra, E. Yu.; Vebrene, B. K.; Voronov, G. S.; Leskov, B. N.; Seregin, A. Yu.; Sumin, Yu. P.; Shalaveyus, S. S.; Shopauskene, D. A.

ORG: Institute of Physics and Mathematics, Academy of Sciences LitSSR (Institut fiziki i matematiki, Akademiya nauk LitSSR); Central Aerological Observatory (Tsentral'naya aerologicheskaya observatoriya)

TITLE: A method of investigating the spread of a passive pollutant in clouds with the aid of radioactive isotopes

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 7, 1968, 792-796

TOPIC TAGS: cloud physics, radioactive aerosol, atmospheric pollution, aerosol dispersion

ABSTRACT: The spread of a passive pollutant in clouds was investigated by introducing the  $\beta$ -emitter  $P^{32}$  and the  $\alpha$ -emitter  $Po^{210}$  into a particular part of the cloud and by subsequently measuring the time of appearance of their concentrations in the precipitation. For collecting precipitation samples at the Moldavian test site of the Central

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UDC: 551.501.776:551.510.72

ACC NR: AP8025816

Aerological Observatory a 300 km<sup>2</sup> test site was established in 1965 on which 85 rain gauges were placed; in 1966 the polygon was increased to about 1300 km<sup>2</sup>. A detailed analysis of a single experiment is presented. The use of radioactive isotopes as tracers introduced into clouds produced data on the area and rate of propagation of pollutants, on the dynamics of washout by precipitation, etc. The use of two radioisotopes with different types of radiation enabled investigation of the spread of pollutants introduced in different parts of the same cloud or during different stages of its development; the use of a tracer of a pure  $\alpha$ -radiator and of the radiographic method enabled study of various microprocesses of the interaction of aerosols in individual cloud drops. Orig. art. has: 4 figures.  
[WA-50; CBE No. 38][729]

SUB CODE: 04/ SUBM DATE: 18Jul67/ ORIG REF: 003

Card 2/2

ACC NR: AP8029678

SOURCE CODE: UR/0050/68/000/008/0029/0033

AUTHOR: Sklyarov, V. M.

ORG: Scientific Research Institute of Aeroclimatology (Nauchno-issledovatel'skiy institut aeroklimatologii)

TITLE: Wind regime in the planetary boundary layer of the atmosphere

SOURCE: Meteorologiya i gidrologiya, no. 8, 1968, 29-33

TOPIC TAGS: atmospheric physics, atmospheric boundary layer, wind, surface boundary layer, statistic analysis

ABSTRACT: Some of the results obtained in studies conducted at the Scientific Research Institute of Aeroclimatology have been at variance with the generally accepted concepts concerning the changes in wind speeds over a day and with height, e.g. that in the planetary boundary layer the wind speeds always increase with height and that above  $H = 100$  m the wind speeds are maximum at night and minimum in the daytime. The study reported here involves the mechanized processing of masses of aerological observations covering the 1959-1963 period. These results indicate that at the 500-1000-m level the mean diurnal wind speed was generally either constant or decreased with height. However,

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UDC: 551.554

ACC NR: AP8029678

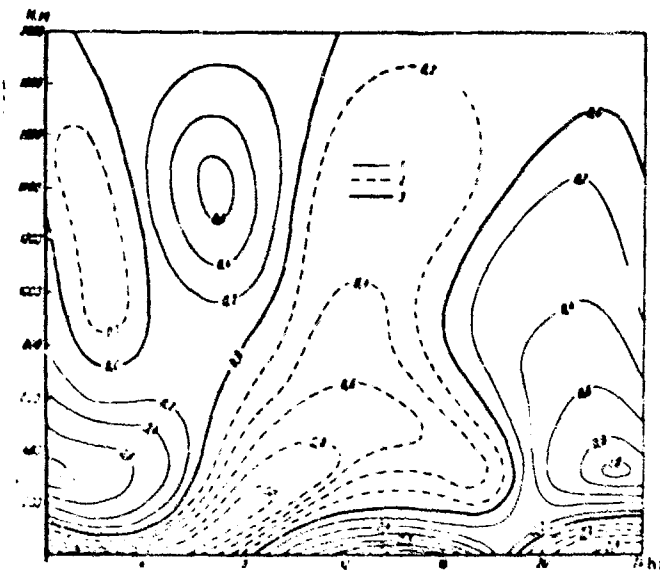


Fig. 1. Isopleths of the deviations in mean wind speed (m/sec) at various times of the day from the mean diurnal wind speed. Kharkov, summer.

1 - Positive deviation; 2 - negative; 3 - zero

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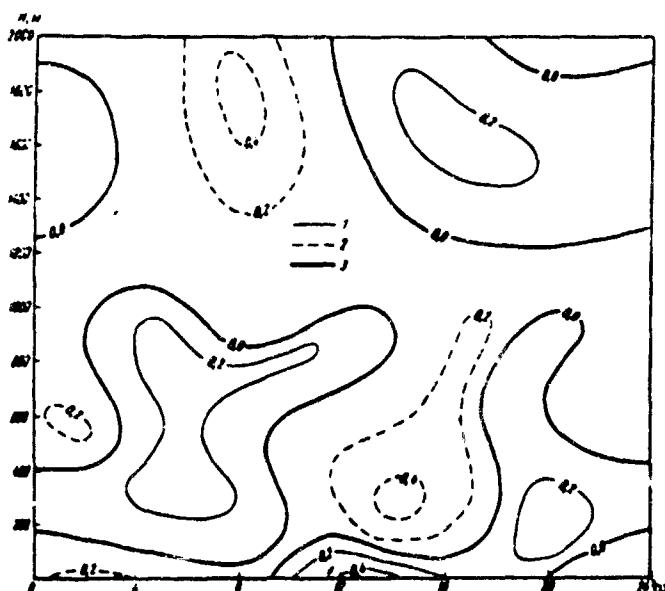


Fig. 2. Isopleths of the deviations in mean wind speed (m/sec) at various times of the day from the mean diurnal wind speed. Khar'kov, winter.

1 - Positive deviation; 2 - negative; 3 - zero

Card 3/4

ACC NR: AP8029678

the wind-speed changes with height varied considerably with the time of day, the maximum wind speeds occurring at the 300—500-m level rather than at the top of the boundary layer, and occasionally occurred around midnight. It was also found that in specific seasons of the year and at specific levels, the maximum or minimum mean wind speeds also may occur either during the daytime or nighttime as is illustrated in Figs. 1 and 2. In general, a succession of interchanges of three-four contrasting types of diurnal changes in wind speeds took place with increasing distance from the surface of the ground and in dependence on the time of year. Orig. art. has: 3 figures and 2 tables.

[WA-50; CBE No. 38][ER]

SUB CODE: 04/ SUBM DATE: 20Mar68/ ORIG REF: 005

Card 4/4

ACC NR: AT8029306

SOURCE CODE: UR/2531/68/000/224/0121/0129

AUTHOR: Tverskoy, N. P.

ORG: none

TITLE: Use of the heat method of organic compound sublimation in an aircraft

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 224, 1968. Fizika oblakov i aktivnykh vozdeystviy (Physics of clouds and cloud seeding), 121-129

TOPIC TAGS: weather modification, aerosol, ice nucleation, organic compound, metaldehyde, phloroglucinol, stratus cloud

ABSTRACT: A description is given of a heat sublimation method, originally devised by the author and V. N. Svarchevskiy, used with aerosol generation equipment modified for use in an IL-14M aircraft. Eleven experiments were carried out using metaldehyde and phloroglucinol to test the equipment operation and to determine the optimum time and method for using these reagents (at various aircraft speeds) in stratiform clouds. Optimal conditions for metaldehyde sublimation were at flow rates of  $v = 1.6$  m/sec,  $v = 1.9$  m/sec,

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UDC: 551.576:551.509.6

ACC NR: AT8029306

$v = 2.0$  m/sec, and corresponding chamber air temperatures of 120, 140, and 145°. For the phloroglucinol, they were 180 and 200° at flow rates of  $v = 1.6$  m/sec and  $v = 2.2$  m/sec. At temperatures below -10°, crystallization took place in the clouds and open areas developed. At temperatures of -2.1°, the metaldehyde failed to induce crystallization because the number of active nuclei introduced was inadequate. Orig. art. has: 4 figures and 1 table. [WA-50; CBE No. 38][ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 002

Card 2/2

- 372 -

ACC NR: AP8025808

SOURCE CODE: UR/0362/68/004/007/0734/0745

AUTHOR: Voloshchuk, V. M.; Levin, L. M.

ORG: Institute of Experimental Meteorology (Institut eksperimental'noy meteorologii)

TITLE: A contribution to a critique of the hydrodynamics of aerosol fluids

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 4, no. 7, 1968, 734-745

TOPIC TAGS: aerosol, hydrodynamic theory, aerosol mechanics, aerosol trajectory, hydrodynamic model

ABSTRACT: The possibility of interpreting the equation

$$k dv / dt + v = u$$

as the equation of motion of a continuous medium--an aerosol fluid--in studying the motion of aerosol particles is discussed. The terms  $v$  and  $u$  are respectively the velocity of an aerosol particle and the field of velocity of some imaginary noninteracting particles which are fully

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UDC: 551.510.42

ACC NR: AP8025808

analogous to the particle examined but which do not possess inertia, and  $K$  is the Stokes number. In this paper it is shown that in the general case this equation contains no prohibition against the intersection of the trajectory of aerosol particles, i.e., fields of  $v$  may exist for which the model of the aerosol field is not applicable. A plane symmetrical flow of a medium is examined whose streamline in some region

$$Q \in (x_0 \leq x \leq x_0 + L, |y| < y_0)$$

meets in the direction of the axis of symmetry  $y = 0$ . It is assumed further that in  $Q$  the components of the vector  $u$  satisfy the inequality

$$\partial u_x / \partial y \leq -a, \quad \partial u_x / \partial x \leq A \quad (0 < a \leq A).$$

It is shown that in the case examined for sufficiently larger  $L$  such a full multiplicity of  $k$  values exists for which the trajectories of aerosol particles approaching the  $Q$  region on the left from an undisturbed current where the velocity coincides with the velocity of medium, will intersect in  $Q' \subset Q$ . Two specific vector fields  $u$  of the type mentioned are examined. The region of determination of both fields is represented as a semi-infinite zone  $\{-\infty < x \leq 10, |y| < 1\}$ . The

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ACC NR: AP8025808

undisturbed jet is directed parallel to the axis of the abscissa and the particle velocity in the undisturbed flow coincides with the velocity of the medium. The equation of motion of the aerosol particles is represented for the first jet

$$k\xi + \xi + k\xi^2 \frac{3\xi - 2}{\xi(1 - \xi)} = (1 + u_0\xi)\xi^2(1 - \xi),$$

$$k\dot{\eta} + \dot{\eta} = -yu_0\xi^2(1 - \xi);$$

for the second jet

$$k\xi + \xi + 2k\xi^2 \frac{\xi^2 + \xi - 1}{\xi(1 - \xi^2)} = 2(1 + u_0\xi)\xi^2 \frac{1 - \xi}{1 + \xi},$$

$$k\dot{\eta} + \dot{\eta} = -2yu_0\xi^2 \frac{1 - \xi}{1 + \xi}.$$

An analysis of their solution for several values of  $u_0$  and  $k$  indicates that the particle trajectories intersect. The behavior of the value on the abscissa of  $x_{int}$  at which the intersection occurs as a function

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ACC NR: AP8025808

of  $k$  is also determined. The intersection of the trajectory of aerosol particles in the case of flow around a solid body and in the bottom part of a jet is analyzed. Some results on the hydrodynamics of an aerosol fluid obtained by using the equation which permits the intersection of these trajectories are discussed. The formula for determining the critical Stokes number when the aerosol particles intersect will determine only the absence of an inertial current at the critical point on a body. Hence, these formulas should be treated as formulas determining those values of the Stokes number at which the inertial flow of the particles on a body becomes very small in comparison with the inertial flow at  $k \rightarrow \infty$ , and also as formulas determining the upper limit of the Stokes number, for which the inertial flow on a body becomes zero. The possibility of intersection of the trajectory of aerosol particles also requires care in the numerical calculation of the inertial flow of particles on a body according to the so-called method of "critical trajectories." Orig. art. has: 6 figures and 25 formulas. [WA-50; CBE No. 38][729]

SUB CODE: 04, 20/ SUBM DATE: 28Aug67/ ORIG REF: 017/ OTH REF: 002

Card 4/4

ACC NR: AM8020943

Monograph

UR/

Zemtsova, A. I.

Climate of Sakhalin (Klimat Sakhalina). Leningrad, Gidrometeoizdat, 1968, 196 p. illus., biblio., graphs, tables, plates

TOPIC TAGS: climatology, atmospheric circulation, solar radiation, temperature field, wind field, atmospheric precipitation, atmospheric humidity, fog

PURPOSE AND COVERAGE: This book is intended for meteorologists, climatologists, geographers, and engineers interested not only in the role of climatology and, to a lesser degree, of associated hydrological factors on the economic development of the island of Sakhalin, but also in furthering the acquisition and analysis of scientific observations and study of the area. The author has succeeded in compiling and systematizing a body of information ranging from meteorological observations made on early exploratory expeditions to data collected by the several meteorological stations and posts established since World War II by the Administration of the Hydrometeorological Service in South Sakhalin (at present, there are more than 40 weather stations of various types and about 35 posts). Other topics deal with the geomorphological, botanical, soil science, and agricultural conditions,

Cord 1/2

UDC: 551.582(571.64)

ACC NR: AM8020943

particularly as they relate to economic planning for and development of the island. [WA-50; CBE No. 38] [ER]

SUB CODE: 04/ SUBM DATE: 15Jan68/ ORIG REF: 069/ OTH REF: 001

ACCESSION NUMBERS FOR ENVIRONMENTAL FACTORS

AP8024055	AP8029092	AT8025859
AP8025808	AP8029094	AT8025860
AP8025816	AP8029676	AT8026881
AP8029011		AT8027258
AP8029082	AT8017497	AT8027262
	AT8025200	

#### **IV. GENERAL**

ACC NR: AP8035630

SOURCE CODE: UR/0018/68/000/011/0105/0108

AUTHOR: Averin, V. (Colonel)

ORG: none

TITLE: Protection of a battalion in winter

SOURCE: Voyenny vestnik, no, 11, 1968, 105-108

TOPIC TAGS: chemical warfare, mustard gas, CBR warfare

ABSTRACT: In drifting snow, CW agents may travel a considerable distance and accumulate at forest edges, gullies, ditches and other places forming dangerously contaminated areas. Tests for CW agents which have drifted with snow should be made from an armored car and should be made every 20-30 min. In winter, the stability of contaminants increases and is several weeks (to a month) for V agents, and several days (to a week) for mustard. The entire depth of the snow cover must be checked for contaminants in areas intended for occupation by personnel. In using the VPKhR device [military chemical detector. See: CBE No. 33, p 139] to check for CW agents, the indicator tubes must first be warmed up; 2-3 times more air must be pumped through the device than in the fall. CW and bacteriological tests are also conducted in the People's Republic

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ACC NR: AP8035630

of China in battalion companies by specially trained personnel using DP-3, DP-5 and VPKhR devices. If a plane passes over battalion location or if artillery bombardment occurs, the degree of contamination should be checked. Various radiological equipment and equipment decontamination solutions are also described in the article.

[WA-50; CBE No. 38] [BC]

SUB CODE: 15/ SUBM DATE: none

Card 2/2

ACC NR: AP8029705

SOURCE CODE: UR/0433/68/000/002/0020/0021

AUTHOR: Filitsin, V. V. (Senior engineer)

ORG: All-Union Association "Soyuzsel'khoztekhnika" (Vsesoyuznoye ob'yedineniye "Soyuzsel'khoztekhnika")

TITLE: New machines

SOURCE: Zashchita rasteniy, no. 8, 1968, 20-21

TOPIC TAGS: agricultural machinery, spray nozzle

ABSTRACT: Field performance of new spray equipment designed for plant protection has been reviewed at a joint session of the Ministry of Agriculture USSR and the All-Union Association "Soyuzsel'khoztekhnika" in December 1967. Mass production of the following spray equipment was approved: the OP-450 (OPM) crop sprayer used with 1.4-ton MTZ tractors. This sprayer contains a rotary pump and centrifugal ventilator with tractor power take-off mountings. The width of spray application varies from 50 to 100 m (depending on the working liquid and wind characteristics), with degree of coverage ranging from 3.5 to 19.3%. Average

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UDC: 632.982.02

ACC NR: AP8029705

diameter of spray droplets is from 103.2 to 128  $\mu$ . This sprayer will be used in the Ukraine, North Caucasus, Kuban, Siberia, and Kazakhstan. Orig. art. has: 2 tables. [WA-50; CBE No. 38][04]

SUB CODE: 02/ SUBM DATE: none

ACC NR: AT8032430

SOURCE CODE: UR/3411/66/000/049/0103/0108

AUTHOR: Kozlovskiy, O. V. (Aspirant)

ORG: Vologoda Milk Institute, Ministry of Agriculture SSSR (Vologodskiy molochnyy institut Ministerstva sel'skogo khozyaystva SSSR)

TITLE: Disc atomizer for direct flow dryer

SOURCE: Molochnoye. Vologodskiy molochnyy institut. Trudy, no. 49, 1966. Trudy. Tekhnologicheskij fakul'tet (Proceedings of the technological faculty), 103-108

TOPIC TAGS: aerosol generator, food technology, dairy science

ABSTRACT: The process of particle dispersion in a dry chamber is modeled. Calculations and graphs are made, based on Cook's formulas

Table 1. Particle size and size distribution according to quantity and dimension

	Particle					
	0-12	12-25	25-40	40-50	50-70	70-100
% of total no.	40	38	12	8	1,5	0,5
% per vol.	3	15	14,5	36	16	15,5

Card 1/6

ACC NR: AT8032430

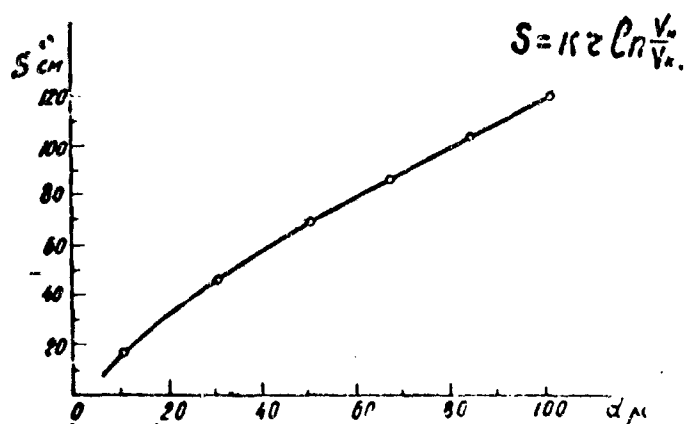


Fig. 1. Graph of the function  $S = kgl.vy/vk$

Card 2/6

ACC NR: AT8032430

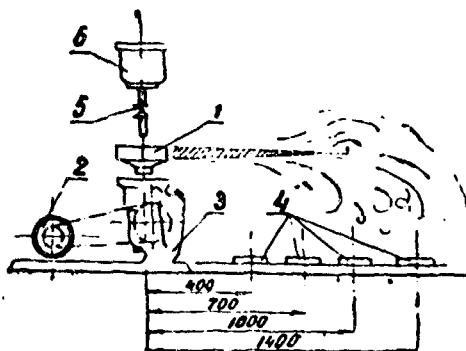


Fig. 2. Experimental apparatus

1 - atomizer; 2 - electric motor;  
3 - reducing gear; 4 - trap;  
5 - valve; 6 - storage tank

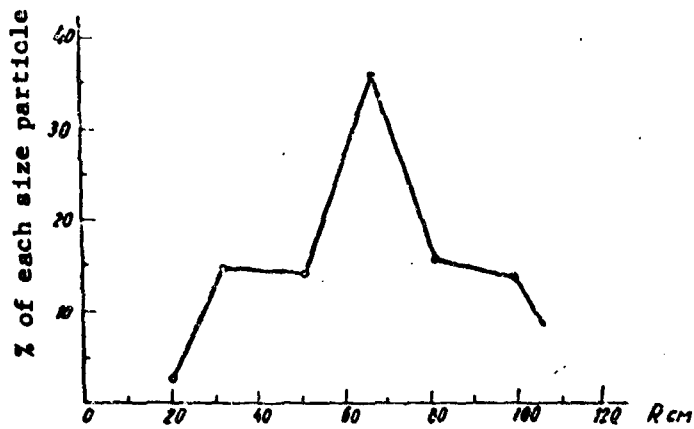


Fig. 3. Distribution of particle radius by size

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ACC NR: AT8032430

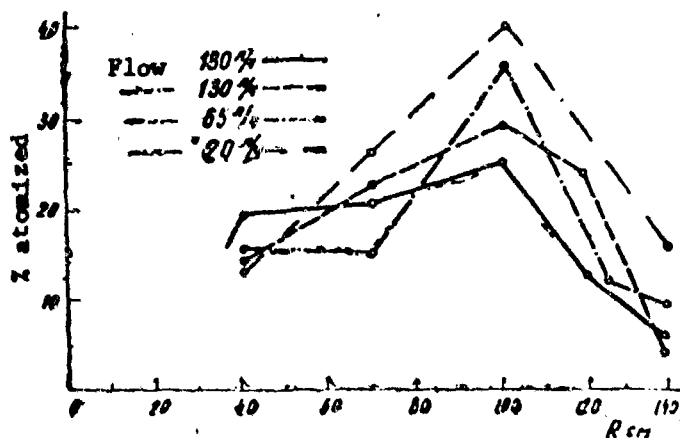


Fig. 4. Distribution of fog volume (based on experimental data) in relation to its dissemination as an atomized liquid

Card 4/6



ACC NR: AT8032430

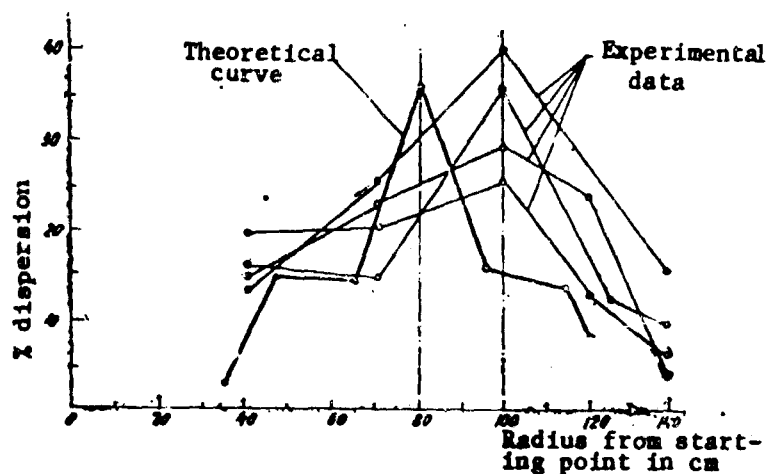


Fig. 5. Theoretical and experimental fog concentrations

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ACC NR: AT8032430

describing the character of particle dispersion, without considering the environment. Change in the quantity of the liquid dispersed does not influence the radius of the maximum fog density. Changing the density of the load hardly affects average particle size. Orig. art. has: 1 table and 5 figures. [WA-50; CBE No. 38] [LP]

SUB CODE: 06/ SUBM DATE: none

Card 6/6

ACC NR: AP8027882

SOURCE CODE: UR/0018/68/000/008/0106/0108

AUTHOR: Litvinov, N. (Lieutenant colonel); Nesytov, Yu. (Engineer, Major)

ORG: none

TITLE: Peculiarities of protection in deserts [from radiation and chemical agents]

SOURCE: Voyenny vestnik, nb. 8, 1968, 106-108

TOPIC TAGS: CBR warfare, desert warfare, CBR protective equipment

ABSTRACT: The use of chemical weapons on deserts presents special problems in the protection of personnel and equipment. Collapsible shelters are needed since the desert offers limited protection. Individual means of protection (gas masks, protective coats, socks, and gloves) can only be worn for 20-30 min in the desert heat. In addition, the face plate of gas masks rapidly "hardens" in the heat, and in sandstorms the breather valves get plugged. This makes necessary the use of means of collective protection: military and transport equipment with filtering and ventilating devices, pre-fabricated and inflatable frame shelters, etc. Two conditions complicate desert procedures

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ACC NR: AP8027882

for decontamination of equipment and personnel: lack of water and complexity of camouflage. Furthermore, wide troop dispersal makes difficult the centralized use of chemical sections. Calculated water consumption per 24 hr is a minimum 6-8 l per person, 30-70 l for servicing each piece of equipment, up to 300 l for decontamination of a tank. Each piece of equipment should have a water reserve of 200 l. With water availability, purification procedures should be taken by removing contaminants and by the use of protective grease, which can also be used for decontamination of personnel and equipment subjected to light contamination. [WA-50; CBE No. 38][BC]

SUB CODE: 15/ SUBM DATE: none

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Card 2/2

ACC NR: AP8031482

SOURCE CODE: UR/0089/68/025/003/0227/0228

AUTHOR: Polev, N. M.; Ruzer, L. S.

ORG: none

TITLE: Method of measuring the concentration of "free" atoms of the daughter products of emanations in air with the aid of diffusion cells

SOURCE: Atomnaya energiya, v. 25, no. 3, 1968, 227-228

TOPIC TAGS: radioactive aerosol, radioactivity measurement, radon

ABSTRACT: This is a summary of article no. 231/4778, submitted to the editor and filed, but not published in full. It is concluded on the basis of experimental investigations of the dispersion spectra of natural aerosols and diffusion coefficients of the "free" atoms of daughter products of emanations that the plot of the activity of the radioactive aerosols of the daughter product against the particle dimensions has a break or at least a kink in the region adjoining the data for the "free" atoms. The presence of this break makes it possible to use as a selective sampling device for the "free" atoms diffusion cells constituting a set of cylindrical or plane-parallel channels through which the investigated air is drawn. An estimate is presented

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UDC: 543.52:539.164:541.182.2

ACC NR: AP8031482

of the degree of selectivity of the cylindrical diffusion cells with respect to the "free" atoms as a function of the parameters of the cell and the rate of flow of the investigated air. It is shown that when these quantities are suitably chosen, the precipitation of the associative activity in the cell is negligibly small compared with the precipitation of the "free" atoms. This makes it possible to calculate the fraction of the free atoms and the total concentration of the radioactive aerosol. The procedure was tested by measuring the fraction of free RaA atoms under laboratory conditions, and estimates of the sensitivity of the method and of its errors were made. At maximum radon concentration the method is suitable if the air stream velocity is highly stabilized and the fraction of the free atoms exceeds several percent. Orig. art. has: 1 formula. [WA-50; CBE No. 38][02]

Cord 2/2

ACC NR: AP8030973

SOURCE CODE: UR/0017/68/000/009/0026/0027

AUTHOR: none

ORG: none

TITLE: A program for civil defense training of 5th, 6th, and 7th graders in 8-year and secondary general education schools

SOURCE: Voyennyye znaniya, no. 9, 1968, 26-27

TOPIC TAGS: civil defense, civil defense training, education, education institute

ABSTRACT: A detailed 15-hour CD program for 5th, 6th, and 7th grades is outlined. For fifth-graders the program includes a 1-hour discussion of citizen participation in CD, 4 hours of weapons of mass destruction (nuclear, chemical, and bacteriological warfare), means of individual defense, and defense equipment (use of gas filters, respirators, and shelters), and 1 hour each for rules of public conduct during alerts and the maintenance of sanitation posts in the schools. The program for sixth-graders includes 5 hours on mass destruction weapons, 1 hour on means of individual protection, 3 hours on defense equipment, rules for public conduct during alerts, and self-help and mutual assistance (first

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aid). Seventh-graders devote 2 hours to weapons of mass destruction, 1 hour to means of individual defense, 3 hours to defense equipment, 2 hours to rules of public conduct during alerts, and 5 hours to self-help and mutual assistance. [WA-50; CBE No. 38][04]

SUB CODE: 05,15/ SUBM DATE: none

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AN KazSSR. Izvestiya. Seriya khimicheskaya (Academy of Sciences of the Kazakh SSR. News. Chemical series)

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